

Agileto®

Help

(Detailed User Guide - ver. 1.53)



Important remarks:

1) The latest version of this document may be downloaded from:

http://www.agileto.com/setup/Agileto_Help.chm

2) Agileto Help document (*.chm) is **context sensitive**. It means that while you are running Agileto software tool you may press anytime the key **F1** and this document will open automatically at the right topic according with the context where you are working in Agileto at that time.

Contents:

Agileto®	1
PC requirements: hardware and software.....	3
Before you start	4
How to install	7
How to start – getting the license	8
A) <i>Get Licence On-Line</i>	9
B) <i>Get Licence Off-Line</i>	12
C) <i>Agileto GOLD EDITION</i>	16
DEMO_PROJECT	17
How to upgrade	19
Directory structure.....	21
Modules available	27
<i>Database & GIS</i>	27
1.1) Generate and update Agileto reference database (3G & 2G).....	27
1.2) Generate MapInfo & GoogleEarth (3G & 2G) cells/sites objects	37
1.3) Network boundary: ‘Border Cells’ detection	46
1.4) View Active database / MapInfo / GoogleEarth representation(s)	50
<i>Network Audit (reports & proposals)</i>	52
2.1) OMC (snapshot *.xml/*.txt): Audit and Sanity Check	52
2.2) 3G: PSC allocation: Audit and Optimization	61
2.3) 2G: BCCHs allocation: Audit and optimization	66
<i>Neighbors Visually representation and converters</i>	67
3.1) OMC (snapshot) <-> MapInfo & Google Earth converters	67
3.2) Neighbors database -> MapInfo & Google Earth converters.....	74
3.3) MapInfo Neighboring tool (3G <-> 3G or 3G <-> 2G).....	79
<i>Network Optimisation (audit and proposal)</i>	84
4.1) Network Optimisation based on Drive Tests	84
4.2) Network Optimisation based on Call Traces.....	133
4.3) Neighbors Optimisation based on PSCs Detected	150
<i>Investigation based on Cells KPIs in MapInfo & GoogleEarth representation</i>	154
5.1) Generate MapInfo & GoogleEarth cells/sites objects based on KPIs values.....	154
Annexes.....	165
<i>Agileto reference database [MobileNW_Config.xls]</i>	165
<i>Drive Tests measurements (scanner/mobile) file</i>	169
<i>KPIs file structure and format</i>	175
<i>PSCs detected file format</i>	176
<i>OMC 2G network file format</i>	177
<i>MapInfo Neighbors export file</i>	178
<i>MapInfo Neighbors import file</i>	179
<i>External Neighbors declarations file</i>	181
Agileto Contact Details	183

PC requirements: hardware and software

- Recommended HW: Intel Dual Core with 1 GB RAM or more.
- OS: Windows XP, Windows Vista, Windows 7 and also on Windows 2003 server or Windows 2008 server.

Agileto® is an Windows application working in conjunction with other three Windows applications:

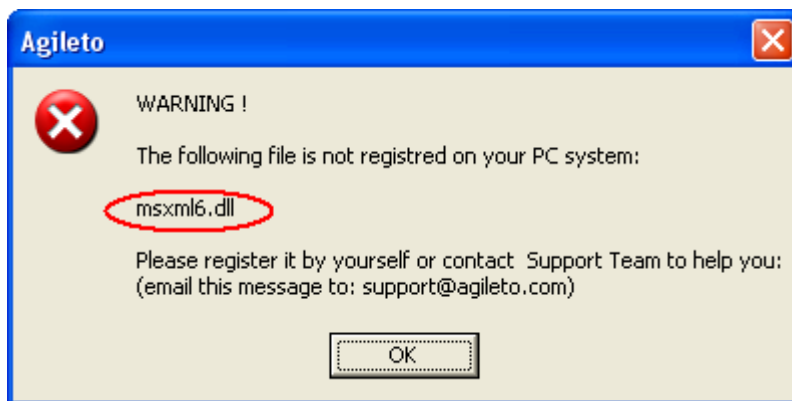
- MS Office Excel (Excel 2000 or greater),
- MapInfo (ver. 8 or greater)
- Google Earth (ver 5 or greater)

Important:

In order to benefit of all its available modules there is a pre-request that Excel, MapInfo and Google Earth applications should be already pre-installed.

Notice:

In case that any library (common Windows *.dll/*.ocx file) used by Agileto is missing from your PC then during the installation phase that library will be downloaded and and registred automatically. In case that the automatically registration process fails you will get a warning message like the one presented below indicating the missing / corrupted / not registred file.



This case you may register it (manually) very eazy, as following:

1.Download ([*.dll](#) / [*.ocx](#)) the missing file (ex: **msxml6.dll**) and store it at this path:

C:\Windows\System32\msxml6.dll

2. Open a DOS command prompt window:

Click on the Windows '**Start**' menu then choose '**Run**' and type **cmd** .

3. Into the new DOS window type the following command then press enter:

regsvr32 "C:\Windows\System32\msxml6.dll"

You should receive a confirmation message telling you that the file has been successfully registred on your PC.

(click [here](#) to get guidance for troubleshooting when the above method failed)

Alternatively, please contact us (support@agileto.com) or check topic on internet.

Before you start

You have to check that **MS Office Excel**, **MapInfo** and **Google Earth** applications are already pre-installed on your PC (MapInfo and Google Earth are not mandatory but they are recommended in order to benefit of all Agileto's modules).

Also, you should have available (as inputs for different modules) the following files:

- OMC 3G network configuration file in one of the following formats: ***.xml**, ***.xcm** or ***.txt**. Usually this is a 3G snapshot (dump) file exported from OMC and the OMC Engineer has access to get this file. All 3G equipment vendors on the market are able to export their 3G/2G network configuration data into files formats like: *.xml, *.xcm or *.txt. For this Detailed User Guide this file will be named - **File #1**.

Notice:

Agileto software tool is 3G vendor independent meaning that it is supporting all the major 3G vendor equipments (**Ericsson/Huawei/Nokia-Siemens/Alcatel-Lucent/ZTE/etc**) therefore it will recognize automatically all the file formats and internal data organization coming from any of the 3G vendors mentioned before.

- Excel (external database) file containing the following information (usually exported from any Planning Tool or mobile operator database). The type of the information necessary to be provided into these external Excel files is mentioned below for each type of the networks (3G & 2G). This information contains mainly the positions (geographically coordinates) and orientations (azimuths) related to the 3G & 2G cells and it is necessary in order to be able to map the networks into MapInfo/Google Earth applications. Mandatory fields are presented below into green background (yellow are optionally but recommended). For this Detailed User Guide this file will be named - **File #2**.

• <u>For 3G network</u> ○ LocalCell_ID ○ Long_WGS84 ○ Lat_WGS84 ○ Azimuth ○ Sector ID (recommended) ○ Cell_Name (recommended)	• <u>For 2G network</u> ○ Cell_ID ○ Long_WGS84 ○ Lat_WGS84 ○ Azimuth ○ Sector ID (recommended) ○ Cell_Name (recommended)
---	--

The common references keys used for the data association between any external Excel file and Agileto reference database (3G & 2G) are:

- 3G -> **LocalCell_ID**
- 2G -> **Cell_ID**

Also, some other additionally (optional) information (if they are available) will help you when working with different Agileto modules. The additionally information is used to update Agileto reference database (3G & 2G). For more information about the (optional) additionally information which may be usefully please see the description of the module [M1.1](#) as well as the Annex describing [Agileto reference database](#) [**MobileNW_Config.xls**].

Some of the Agileto's software modules would require you to have available some other additionally information / files as they are presented below.

- Call Traces in ***.tab** or ***.xml** format up to the 3G vendor equipment. The purpose of getting these files is for the network optimization method ([M4.2](#)) based on the Call Traces. The Call Traces files may be collected as usually by the OMC engineer after a command of launching the record of these files (Call Traces) has been issued in advance for a period of time. In order to have the best Neighboring optimization approach, the time recommended for the collection of the Call Traces (on all the 3G cells belonging to a dedicated geographically region/area [cluster of ~ 20 NodeBs, or one / more RNCs] is 1 week (minimum 1 day). The recommended time for the Call Traces collection is suggested to be 1 week in order to ensure that the geographically traffic distribution related to most of the mobile users is 'collected' representative from the statistically point of view (as the traffic profile may change considerable from one day to another day along to one week). For more information please check the description of the module [M4.2](#). For this Detailed User Guide these files will be named - **File #3** (related to a sample file).
- Drive Test measurements file (***.csv**). The purpose of getting this file is for the network optimization method ([M4.1](#)) based on the Drive Test measurements data collection. This file may result after performing a drive test while a GPS device was attached to the drive test equipments. This file contains the associated information between the geographically position of the drive test equipment (collected continuously from the GPS) and different 3G and/or 2G signal strengths/quality metrics collected from the scanner/mobile device used for the drive test purpose. For more information regarding the structure/format of this file please see the description of the module [M4.1](#) as well as the Annex describing the [Drive Tests measurements \(scanner/mobile\) file](#). For this Detailed User Guide this file will be named - **File #4**.
- KPIs file (***.xls**). The purpose of getting this file is for the mapping of the network(s) 3G and 2G cells into MapInfo and Google Earth based on their cells performance (KPIs). They may be represented in MapInfo and Google Earth by having different colors and/or lengths according with their KPIs values. These files are usually provided by the Monitoring/Performance Engineer on different KPIs/metrics collected/reported for a specific period of time. For more information regarding the structure/format of this file please see the description of the module [M5.1](#) as well as the Annex describing the [KPIs](#)

[file structure and format](#). For this Detailed User Guide this file will be named - **File #5**.

- PSCs detected file (*.txt). The purpose of getting this file is for the neighboring optimization method ([M4.3](#)) based on the PSCs Detected. This file may be outputted as result after (either):
 - Drive Test (mobile) export processing data,
 - Monitoring reports,
 - Call Traces export processing data.

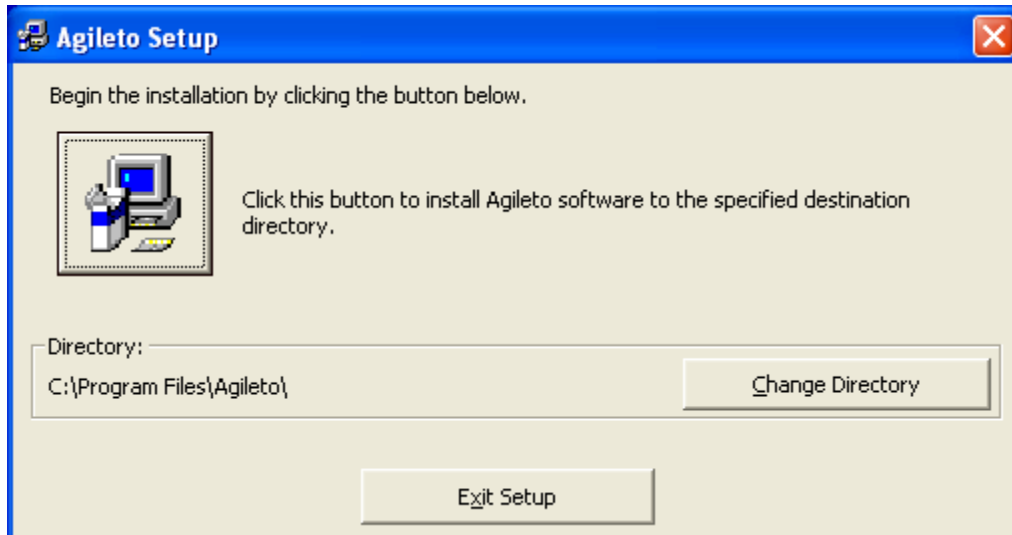
For more information regarding the structure/format of this file please see the description of the module [M4.3](#) as well as the Annex describing the [PSCs detected file format](#). For this Detailed User Guide this file will be named - **File #6**.

- OMC 2G network export file (*.xls/*.csv). The purpose of getting this file is for updating Agileto 2G reference database; this operation may be performed directly by the module [M1.1](#) (or indirectly by the module [M2.1](#)). This file contains information exported directly from the OMC (2G) related to the 2G network and it should contain as minimum the following information regarding the 2G network cells:
 - CID
 - LAC
 - BCCH
 - BCC
 - NCC

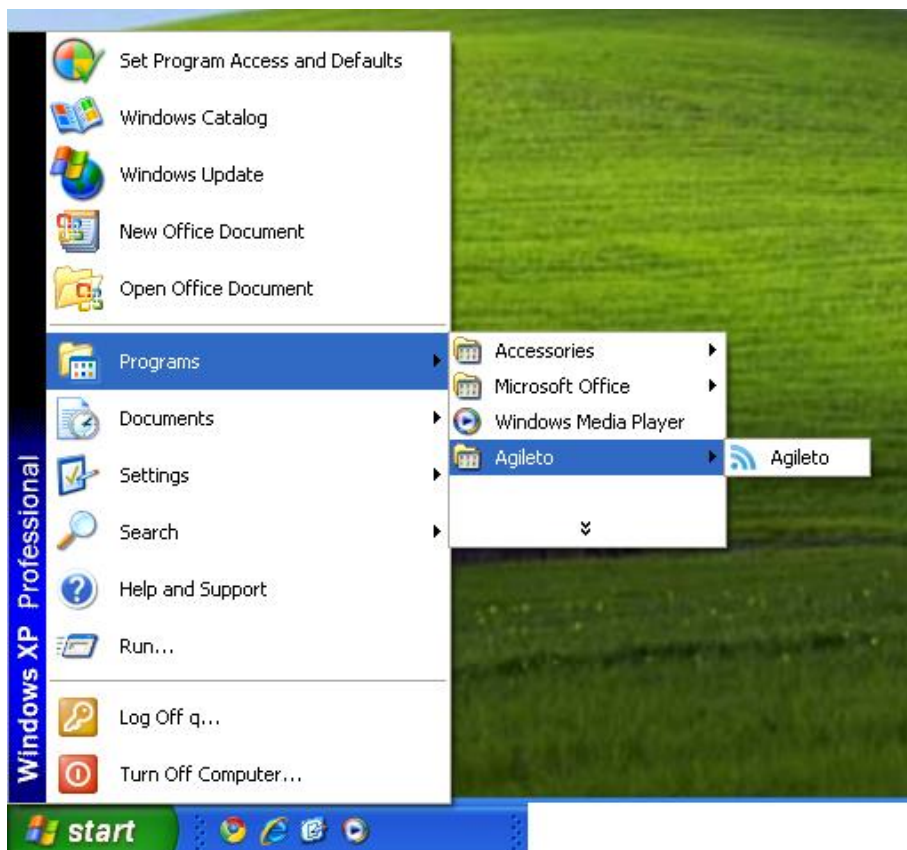
For more information regarding the format of this file please see the description of the modules [M1.1](#) and [M2.1](#), as well as the Annex describing the [OMC 2G network file format](#). For this Detailed User Guide this file will be named - **File #7**.

How to install

Launch **Agileto_Setup.exe** provided by Agileto[®] and follow the instructions. During the installation you can change the default installation directory:



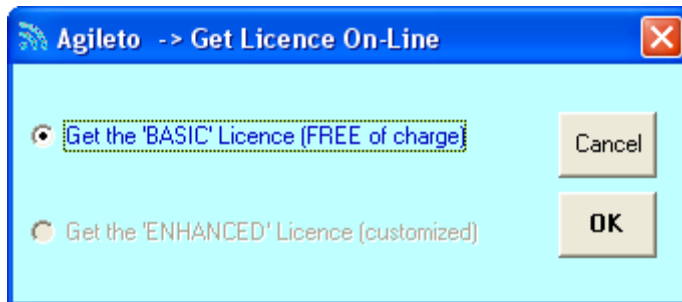
After installation, it will be created a shortcut in Start -> Programs - > Agileto from where you may launch Agileto anytime (see below):



How to start – getting the license

You can launch Agileto from the following path: Start -> Programs - > Agileto

If you do not have a valid Licence (usually when you start Agileto for the first time) you will get the following message:



If you select “OK” then you will go directly to the [case A\)](#) mentioned below which will lead you to get the Basic licence On-Line.

In case you select ‘Cancel’ then you will get the main Agileto[®] window like below:

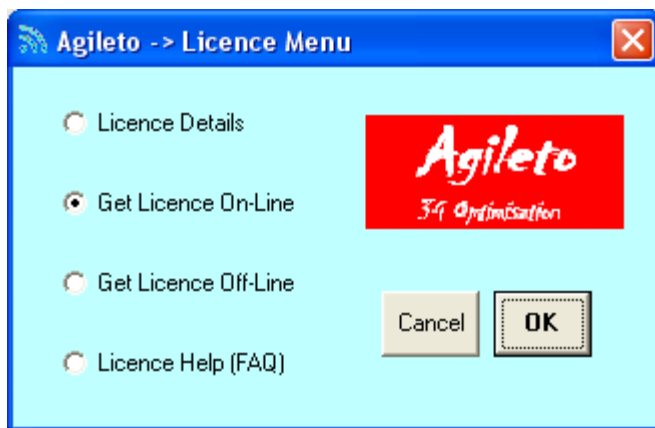


(Notice: the red dot means no valid Licence)

You have to push “About” button and you will get the following screen:



Now choose “Licence Menu” and after this push OK button and you will have:



There are two ways for getting a Licence:

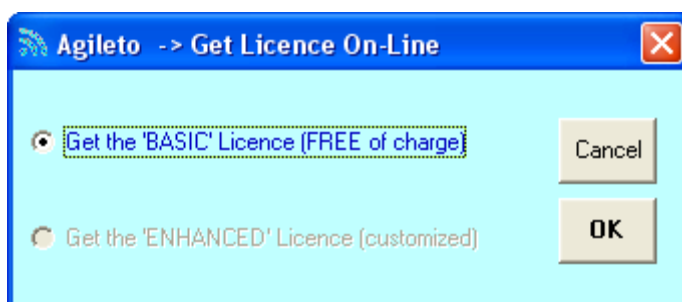
- **A) Get Licence On-Line** -> This way may be used only when you are connected On-Line to Internet;
- **B) Get Licence Off-Line** -> This way can be used anytime by exchanging Agileto Licence file from your PC (using the email) with Agileto Sales Team.

Before to continue further it is necessary to precize that there are two main types of Agileto Licences, as following:

- **Agileto BASIC Licence** -> This licence can be obtained instant On-Line and it is usually provided as FREE OF CHARGE. It has limited functionalities, has no support for any 3G vendor equipment and it is issued for 31 days validity period of time while the user may explore Agileto with limited capabilities.
- **Agileto ENHANCED Licence** -> This licence has support for minimum one (1) vendor 3G equipment, has access to all Agileto's modules (it may be customised which module to have access or not) and its validity period of time is established as an agreement between the user and Agileto Sales Team.

A) Get Licence On-Line

In case you select to ‘**Get Licence On-Line**’ then you will get the following window prompting to select which tupe of Licence would like to get (like below):



If you already have a valid licence then the second option (ENHANCED) is enabled, otherwise you are obliged to get initially an Agileto BASIC licence.

After pressing the button OK the registration form is open like below and the user is requested to provide his/her registration details.

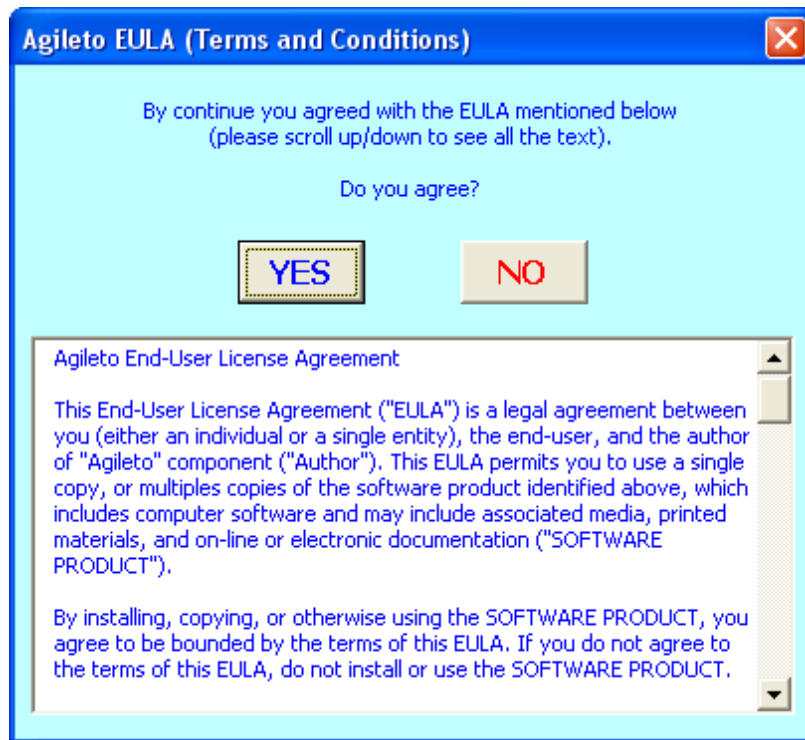


The image shows a screenshot of the 'Agileto User Registration Form' window. The window has a blue title bar with the text 'Agileto User Registration Form' and a close button. The main content area is light blue and contains the following elements:

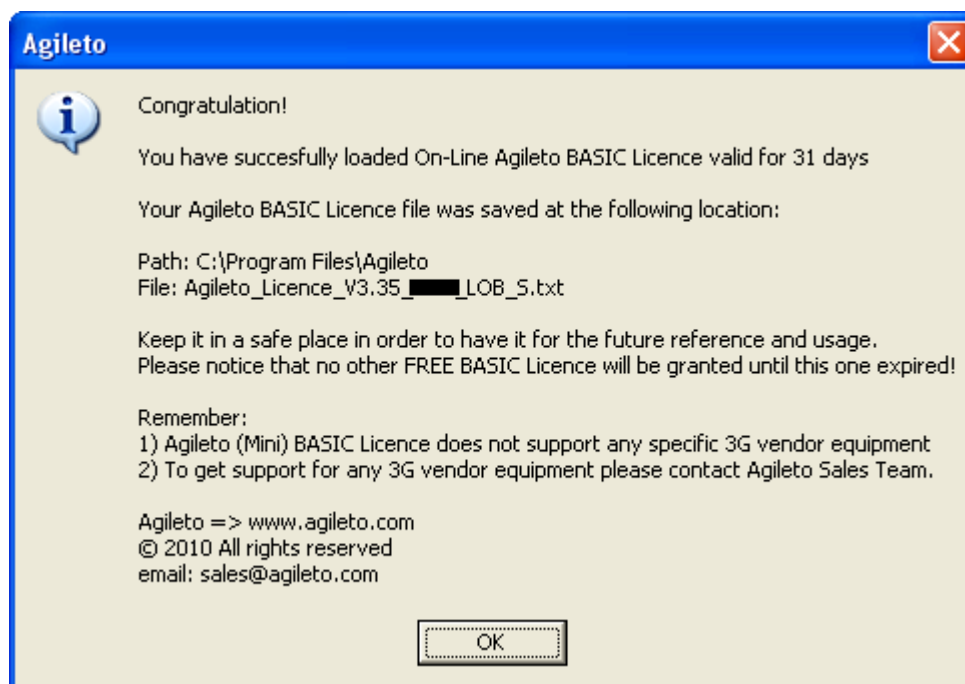
- A heading: 'Please data-fill the fields below in order to register with us'.
- A checkbox with the text: 'Click here to register faster and get Agileto Mini Basic Licence valid for only 5 (!) days...'. The checkbox is currently unchecked.
- Registration fields with labels and values:
 - Name and Surname: John Cane
 - Country: USA
 - email: john.cane@verizonwireless.com
 - email (confirmation): john.cane@verizonwireless.com
 - Phone: +1 309 820 7047
 - Company: Verizon Wireless
 - Position/Title: RF Planning and Optimisation Engineer
- At the bottom left is the Agileto logo (a red square with 'Agileto' in white and '3G Optimization' in smaller text below it).
- To the right of the logo is the text: 'Agileto => www.agileto.com', '© 2010 All rights reserved', and 'email: sales@agileto.com'.
- At the bottom right are two buttons: 'Cancel' and 'OK'.
- At the very bottom, in small red text, is a warning: '*** Notice that FALSE registration may break the user acces to this tool and other legal consequences ***'.

The user who is just interested to browse the basic Agileto's functionalities for few days (up to 5 !) can perform a faster registration by providing only his/her email address but in this case it will be provided with so-called **Mini BASIC Agileto licence** which is in fact a BASIC Agileto Licence with a validity of only 5 days.

When all the registration fields are datafilled press OK and you get Agileto EULA:



You need to agree with Agileto EULA then you will get the following message:



After pressing the OK button the full Licence details windows will occur like below:

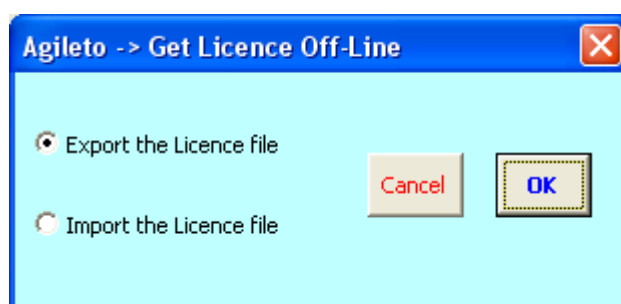


After pressing OK button the main Agileto window occurs with the (old) red dot changed now into a green dot meaning that a valid licence is running (for 31 days).

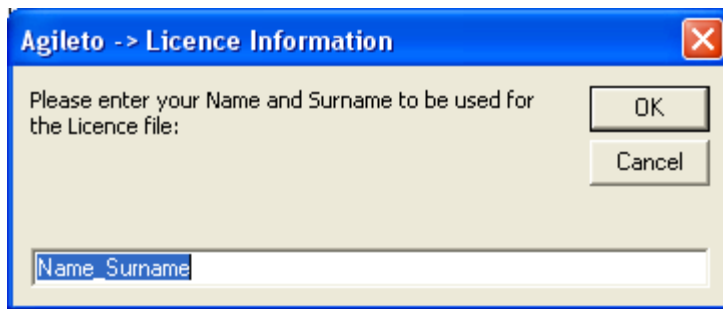
Observation: **Agileto BASIC Licence** is the first type of Licence that a user may get On-Line. After you have got a BASIC licence, you may select anytime to **Get the 'ENHANCED' Licence** (On-Line) if there is an agreement between you and the Agileto Sales Team or you are qualified for a special Agileto promotion claiming for such of ENHANCED Agileto Licence.

B) Get Licence Off-Line

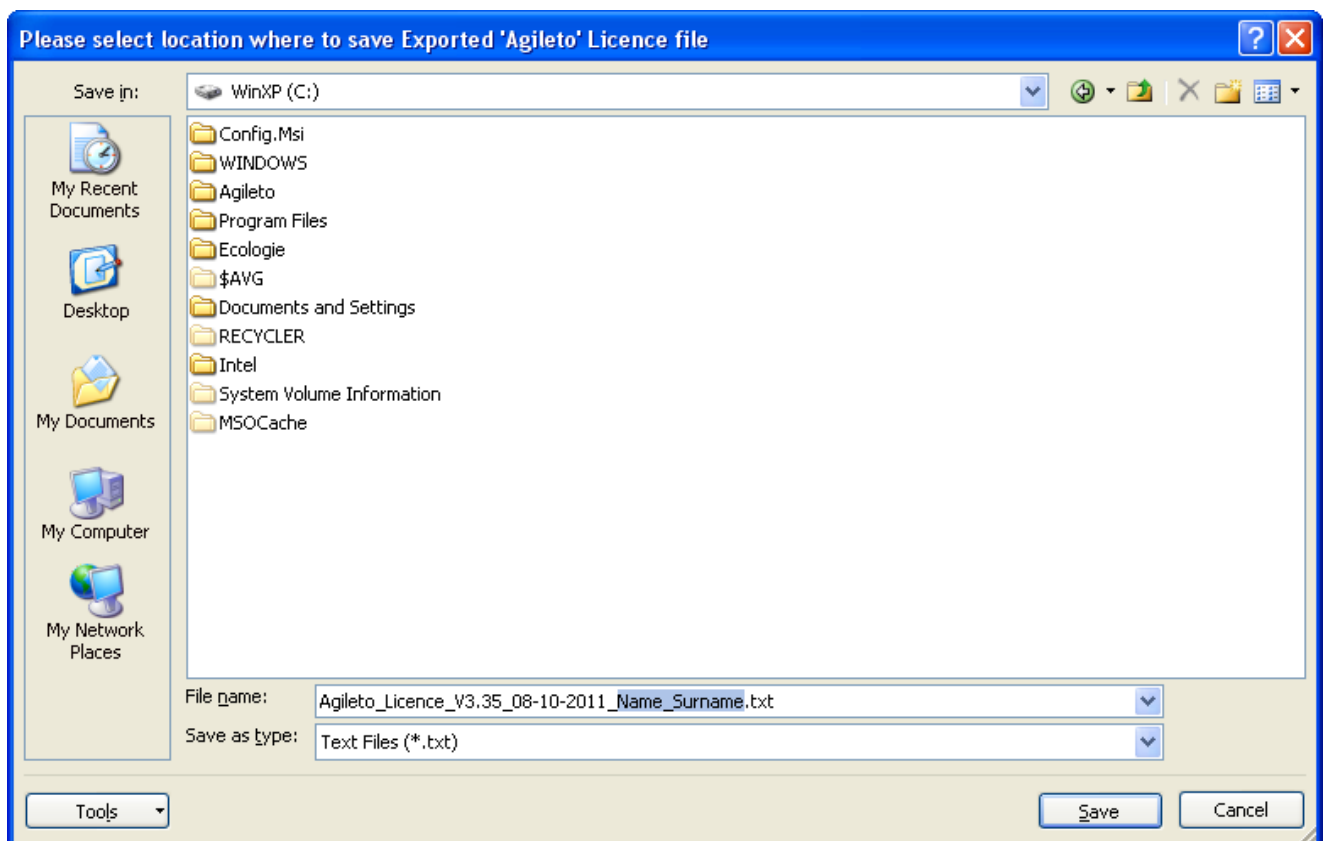
In case you select to '**Get Licence Off-Line**' then you will get the following window prompting to select which tupe of operation you would like to perform (like below):



Initially please select the first option “Export the Licence file” and then push OK. You will get:



Fill the Name and Surname with your relevant information and then push OK. You will get then the next window asking for the path location where you want to save your Agileto exported licence file:



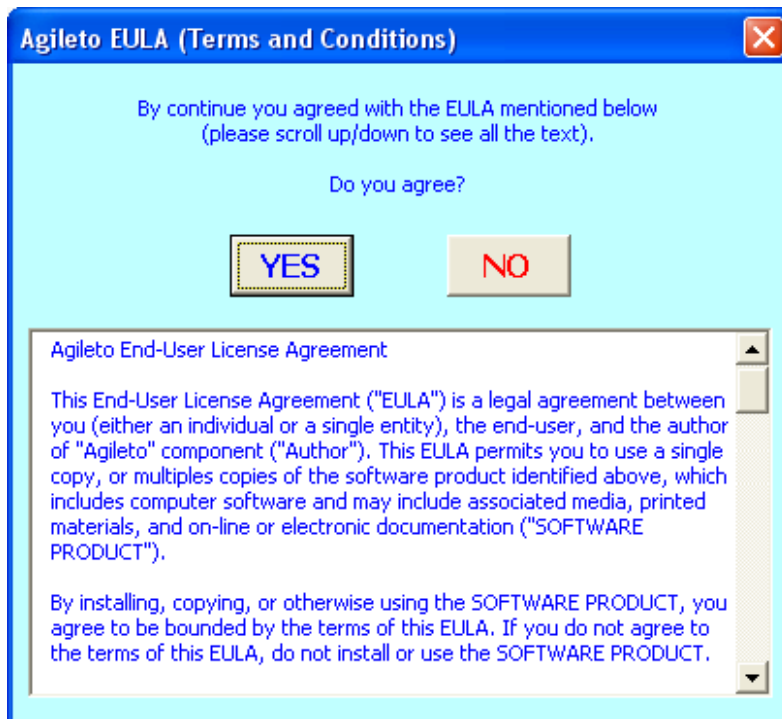
Save your Agileto Exported Licence *.txt file on your PC and then send it by mail to sales@agileto.com.

You will receive back your customized **Agileto ENHANCED License** file (*.txt) which you will need to import in order to be able to use the tool, as following:

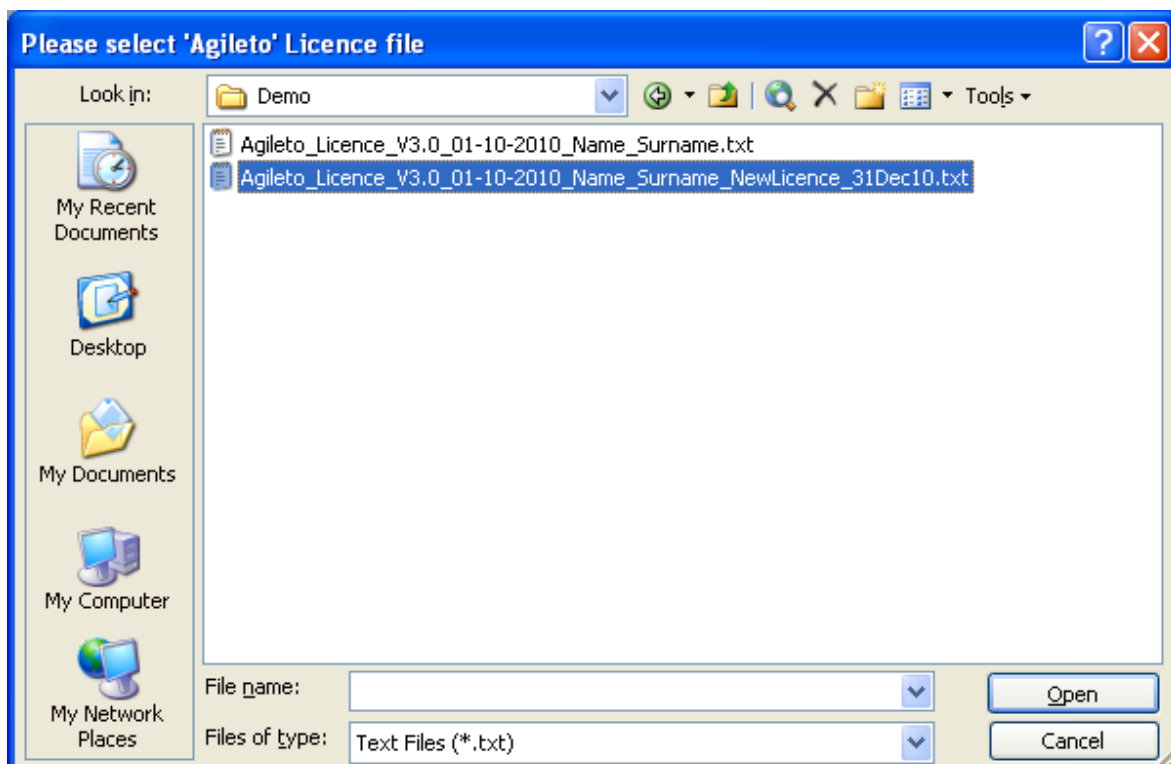
Launch again Agileto[®] software and then choose:

About -> Licence Menu -> Get Licence Off-Line -> Import the Licence, then push OK.

You need to agree with Agileto EULA by pressing the Yes button (see below):



You have to select the license file (which you've got back from the Agileto Sales Team) that should be imported and then push "Open" button.



After the successfully import of the license you will receive a confirmation message/window like it is presented into the next picture. Push OK.



You will get then another window containing the summary details of the Licence that was given to you (**ENHANCED**) and it was just imported successfully (see the picture below).



Choose OK and you will get again Agileto[®] Main menu window as per below:



(Notice: the red dot changed to the green dot)

C) Agileto GOLD EDITION



Agileto ‘GOLD EDITION’ is a special edition which cumulates all the results from the modules & features developed by Agileto in time. It is coming together with an Enhanced Licence (free of charge) and is supporting all the main vendors like: Ericsson, Nokia-Siemens, Alcatel-Lucent, Huawei, ZTE.

The licencing process is no more required for this case (GOLD EDITION) as it was described into the sections mentioned above. The registration process is optional (recommended) in order to allow the user to benefit for free and with priority of the following:

- Technical Support,
- New/Beta versions & upgrades,
- Communication news regarding Agileto.

Final remarks:

1) You may check any time the status of your Licence in order to have displayed the full Licence details (updated) window like it was presented before by pressing from Agileto Main menu the following combination: **About -> Licence Menu -> Licence details** and pressing always the OK button.

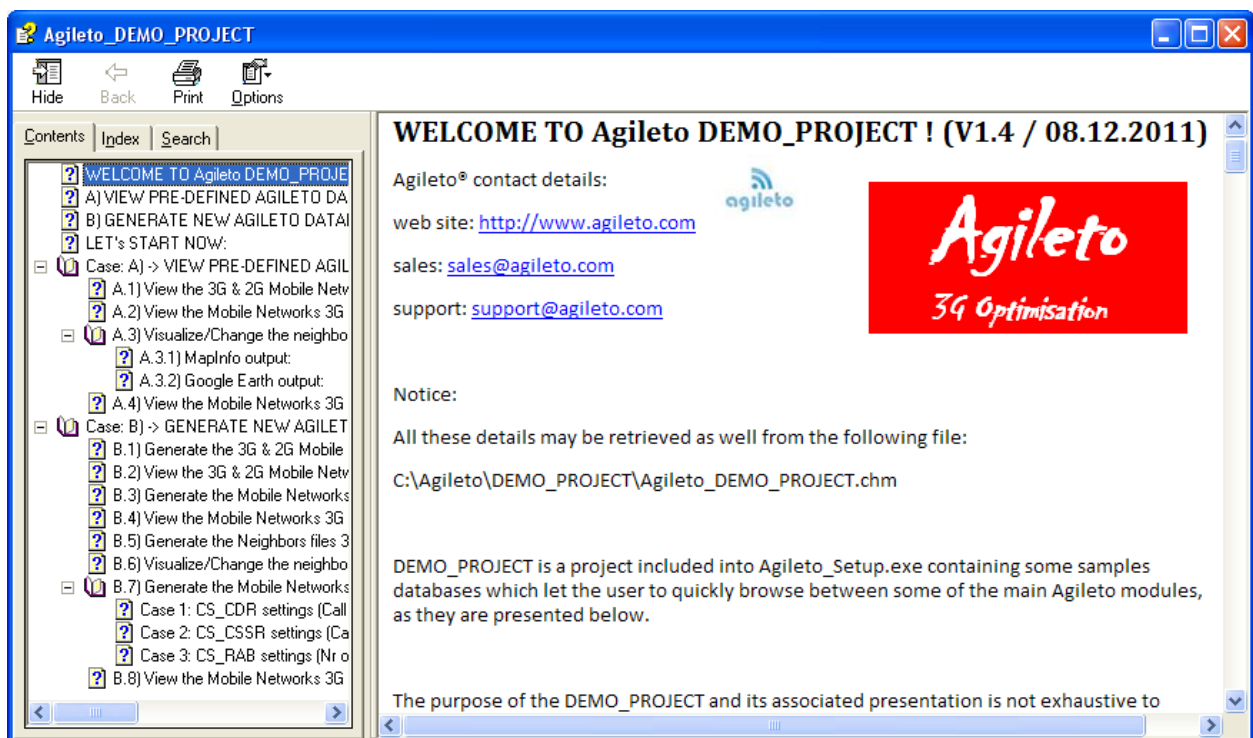
2) Please be aware that you will need to run for the first time the module [M1.1](#), before running any other module. This is necessary to be performed initially in order to generate Agileto’s 3G & 2G reference database which should be available for all the other modules. For more details about Agileto reference database please follow on this Detailed User Guide the section named: [1.1\) Generate and update Agileto reference database \(3G & 2G\)](#)

You may start now to use Agileto® software tool. Good Luck!

DEMO_PROJECT

In order to be easier for a new user to explore Agileto's capabilities it was included into Agileto setup kit a DEMO_PROJECT containing some predefined samples databases and guidelines which provide indications (step-by-step) about how to perform different basic tasks in Agileto.

Agileto DEMO_PROJECT help file is the file named **Agileto_DEMO_PROJECT.chm** (see below) and it contains some basic Agileto tasks and few examples. It is open automatically when the DEMO_PROJECT is installed (together with Agileto setup process or later on like it is presented further).



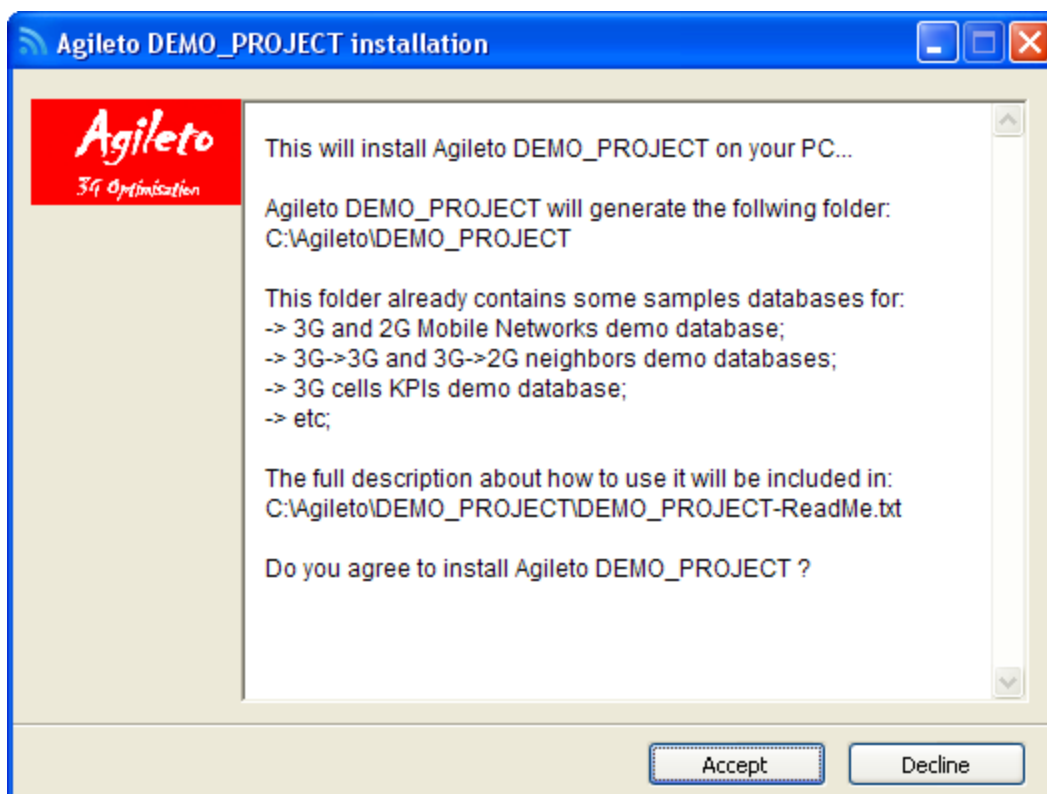
The installation of the Agileto DEMO_PROJECT is performed automatically during the Agileto installation process.

To activate (and re-install) Agileto DEMO_PROJECT later on (during the normal usage of Agileto when a different project has been selected as active) the user would need to perform the following selection from the main menu (like it is presented into the picture below):

About -> Instal and Activate DEMO_PROJECT



Press OK button and Agileto DEMO_PROJECT Installation process will start like it is presented into the next picture.



You will need to 'Accept' in order to continue. When the installation is completed Agileto_DEMO_PROJECT help file is open automatically like it was presented at the beginning of this chapter.

Agileto_DEMO_PROJECT help file resides at the following path:
C:\Agileto\DEMO_PROJECT\Agileto_DEMO_PROJECT.chm

How to upgrade

If you are connected to internet, each time when Agileto is launched it will check by itself if a new version is available and if it is the case the upgrade process to the new version will start automatically like it will be presented further.

Additionally, you may check manually anytime if a new Agileto version is available for upgrading by pressing the following combination: **About -> Check for updates...** like it is presented into the picture below:



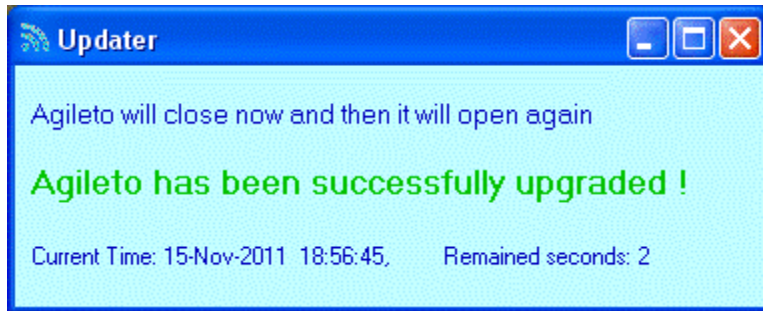
If there is not detected a new Agileto version available then a message it is displayed to you like into the picture below.



In case it is available a new Agileto version then Agileto 'Updater' will manage automatically the upgrade to the last version available without any user manual intervention. This case the following window is displayed:



When the upgrade is completed the message will change to the following:



After the upgrade is completed you may continue to use straightway Agileto who's Main Menu will re-open again (automatically) presenting the new Agileto version updated like below:



This string presents **Agileto version number**.

All the previous Agileto's settings including the Licence details remained the same after the upgrade has been performed.

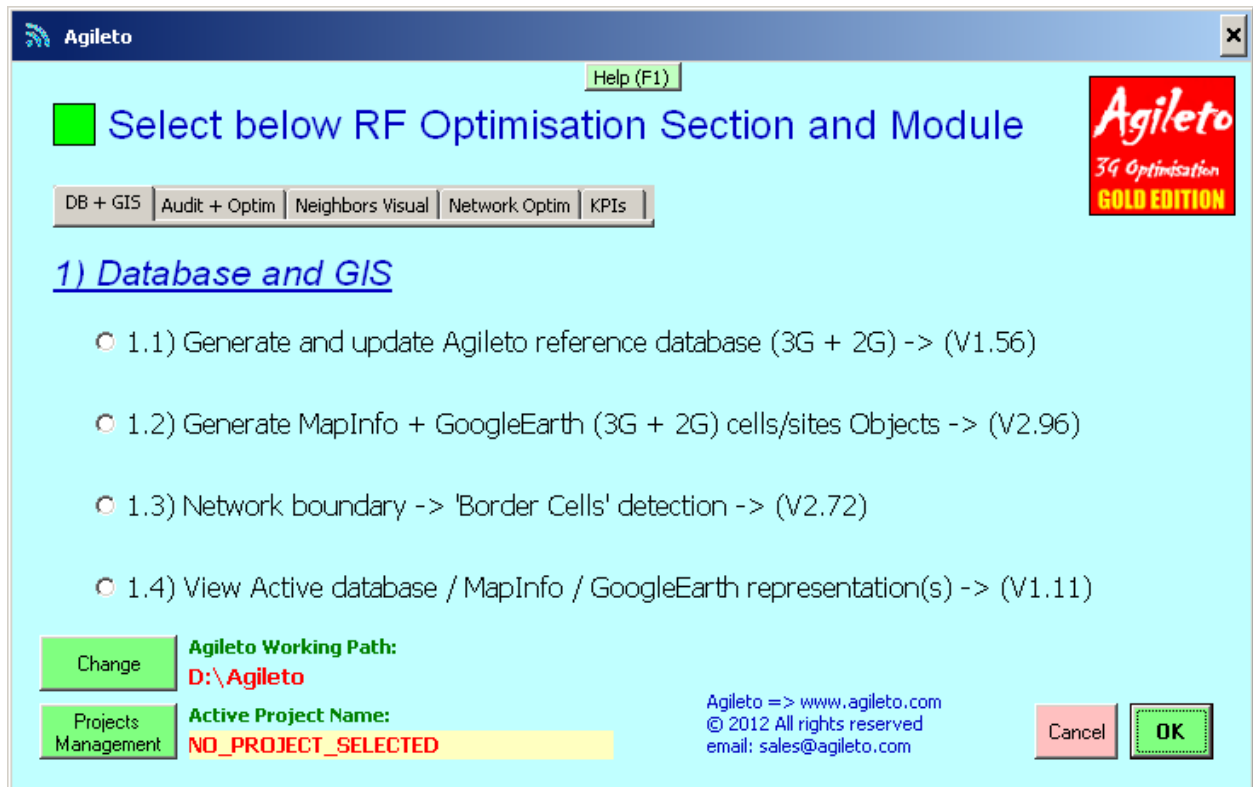
You may continue to use Agileto tool straightway like you already did before the upgrade process took place.

Directory structure

You may start using Agileto tool by pushing the “Start” button, as per below:



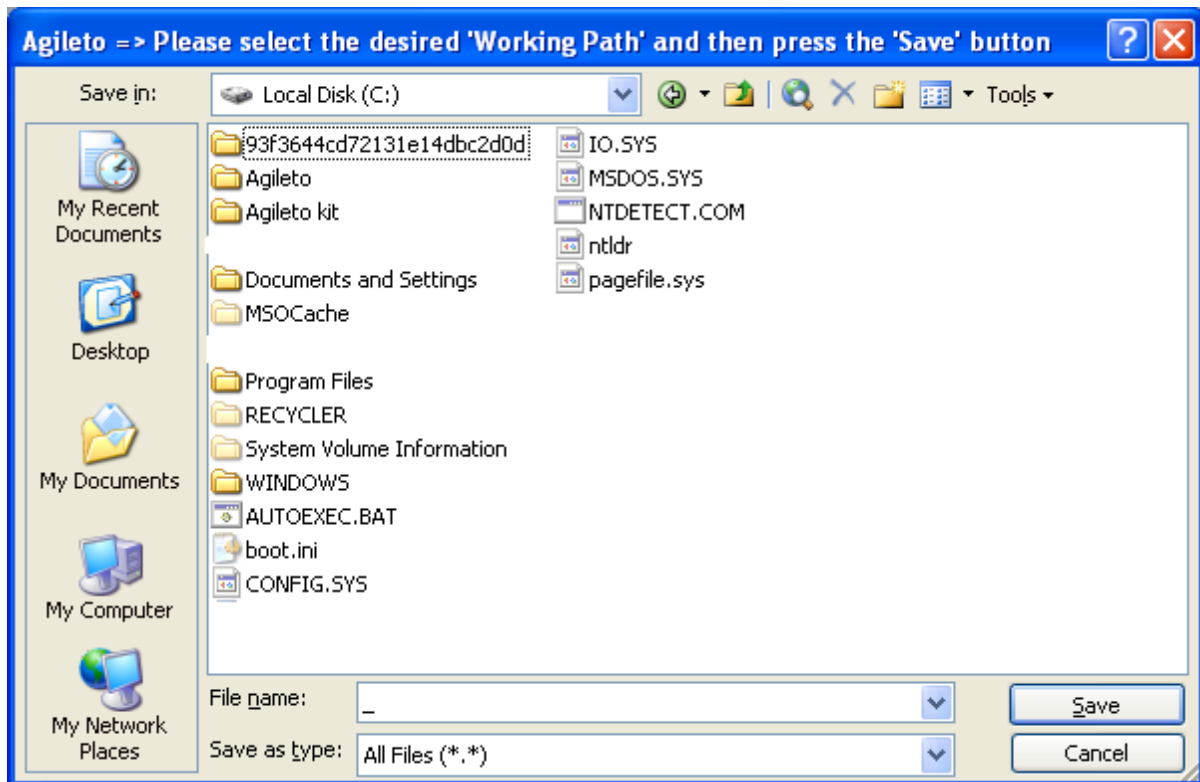
And you will see:



You can change ‘**Agileto Working Path**’ that means the directory where all the Agileto Projects (each Agileto Project has its own folder) will be stored. This path is stored internally by the tool as the reference “Working Path” of the tool.

In case this path doesn’t exist on your PC then the path will be displayed with red color (like into the above picture: **D:\Agileto**). If the path already exists on your PC then it will be presented with green color. In order to change “Agileto Working Path” you need to press the “Change” button from the above picture. Then answer and follow the indications provided by the tool.

As provided into the example mentioned above, you need to select a valid “Agileto Working Path” as the current path stored into the tool (**D:\Agileto**) is displayed with red color that means it doesn’t exist. This case, please choose a valid path by pushing the “**Change**” button and a dedicated window interface (see below) will ask you to select the desired path:



For example, if you choose **C:** drive, push the “Save” button and **C:\Agileto** folder will be created. Please notice that after the path selection is performed the folder Agileto is created automatically into the path selected and this will be the final “Working Path”.

Example:

Path selected: -> **C:** (which means that):

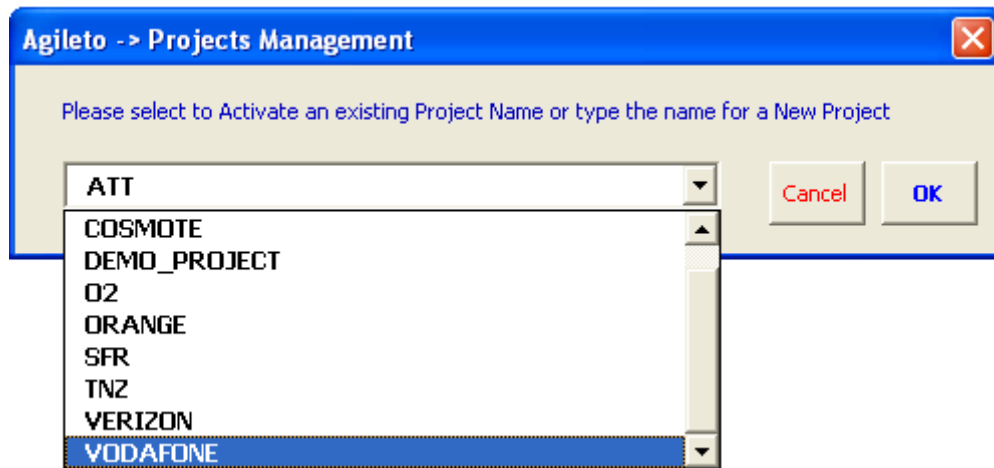
Agileto Working Path: -> **C:\Agileto**

Starting with Agileto engine version 36.685 it has been introduced **the new concept of working dedicated on separate projects**. This means that each project will have created its own directory under the “Agileto Working Path” location. This directory will carry on all the data related to that project. The name of the project is the same with the name of its associated directory generated under “Agileto Working Path”.

As per the example presented into the first image on this chapter, in case that no project was already created under “**Agileto Working Path**” (or the last active project/folder was deleted) then under the path location “**Active Project Name**” it will be displayed with the red color the message “**NO_PROJECT_SELECTED**”.

In order to perform the management of the projects (generate a new project or select an existing one) you need to press the button named “Projects Management”.

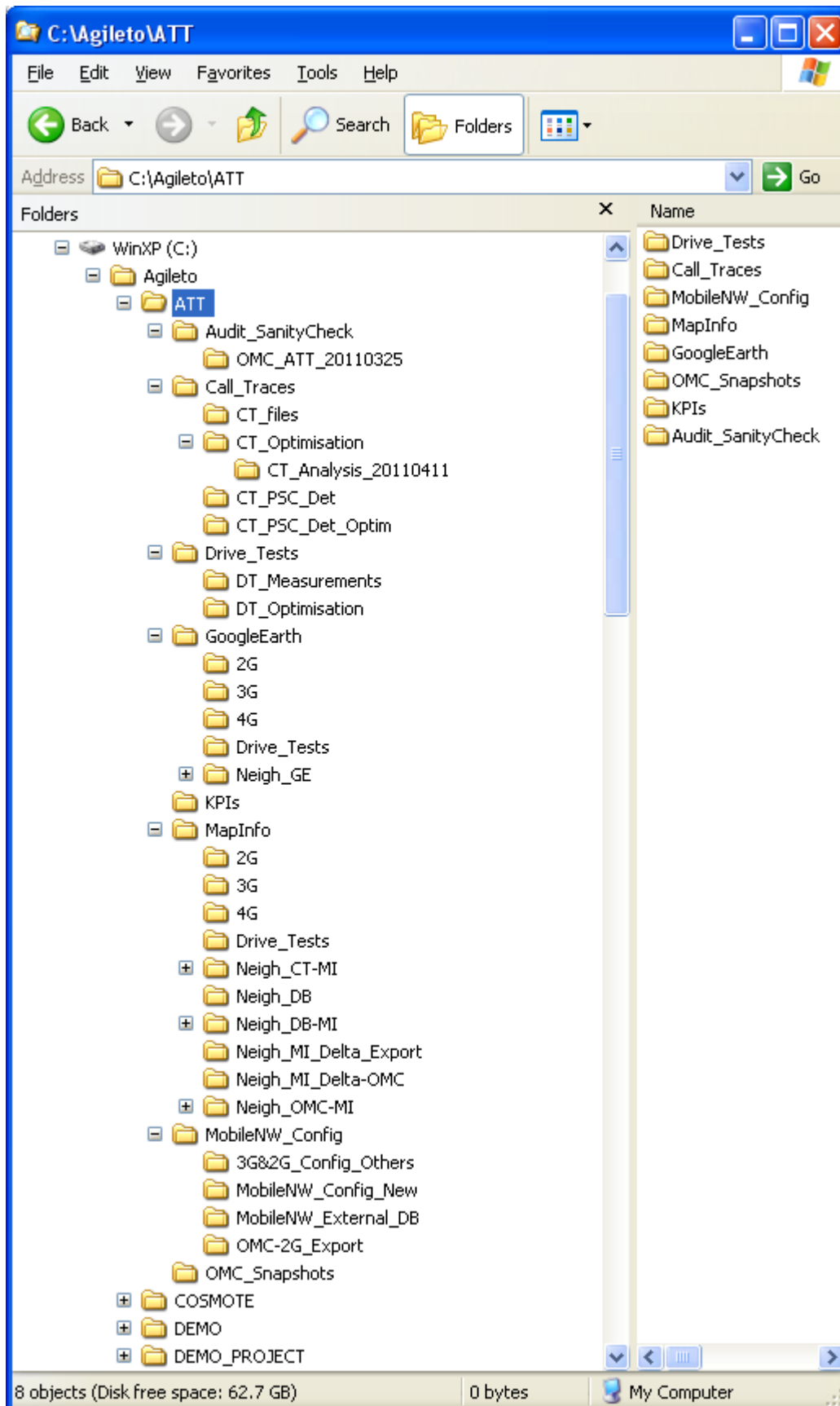
Into the new message form which will occur (see the next picture) you need to type in (or select) the name of the desired project. If it is typed the name of a new project a new corresponding folder will be automatically generated under “Agileto Working Path” location corresponding to the new project just created.



After selecting / typing the name of the desired project this will be recorded by the tool as the last (working) Active project and you do not need to select it again next time when you open the tool.

In case you would like to select another existing project you just need to select it from those displayed into the form (like it is presented into the above picture).

Under “**Agileto Working Path**” location there are generated folders representing all Agileto’s projects already created in advance; each Agileto project (folder) contains a number of standard subfolders like they are presented into the picture below (they are generated automatically by Agileto tool when a new project is created):



All the folders presented above are automatically generated under each project (folder) and they are going to be used during the usage of the tool for different purposes; some of them are recommended to be used by the user for the purpose of storing specific data, some of these folders are used automatically by the tool when generating different reports.

The purposes/usage/meaning of these folders and their associated files are presented below, as following:

Audit_SanityCheck -> directory where the tool is storing the reports and the output files after the 3G/2G Audit & 'Sanity Check' is performed (M2.1 outputs);

- Ex: **OMC_ATT_20110325** -> it is an output directory generated by the tool (with the module M2.1) by using as input the OMC 3G snapshot file OMC_ATT_20110325.xml.

Call_Traces -> directory related to the network optimization (3G-3G/3G-2G neighbors analysis/proposals -> M4.2 & M4.3) based on Call Traces containing:

- **CT_files** -> directory where it is recommended to be stored the Call Traces (*.xml/*.tab) files/directories [Input data for M4.2];
- **CT_Optimisation** -> directory where the tool is storing the output reports for the network optimization based on Call Traces (M4.2 outputs);
- **CT_PSC_Det** -> directory where it is recommended to be stored the Call Traces (*.txt file) containing PSC detected [Input data for M4.3];
- **CT_PSC_Det_Optim** -> directory where the tool is storing the output reports for the neighbors optimization based on PSCs detected (M4.3 outputs);

Drive_Tests -> directory related to the network optimization based on the Drive Tests (module M4.1); this directory contains two subdirectories, one for inputs (DT_Measurements) and another-one for outputs (DT_Optimisation), as following:

- **DT_Measurements** -> directory where it is recommended to be stored the Drive Tests (scanner/mobile) measurements data files [Input data for M4.1];
- **DT_Optimisation** -> directory where the tool is storing the output reports for the network/neighbors optimization based on the Drive Tests (M4.1 outputs);

GoogleEarth -> directory related to the representation in Google Earth formats of different outputs like 3G & 2G mobile networks, Drive Test outputs, 3G->3G + 3G->2G + 2G->2G Neighbors, etc:

- **2G** -> directory where the tool is storing in GoogleEarth formats the 2G Sites & 2G Cells files (automatically generated & stored here by M1.2 & M5.1);
- **3G** -> directory where the tool is storing in GoogleEarth formats the 3G Sites & 3G Cells files (automatically generated & stored here by M1.2 & M5.1);
- **Drive_Tests** -> directory where the tool is storing the output results of the Drive Test Analysis/Optimisation generated in Google Earth format (M4.1);
- **Neigh_GE** -> directory where the tool is storing the neighbors generated in Google Earth format by different modules (M3.1, M3.2, M4.1, M4.2);

KPIs -> directory related to the module M5.1 -> this is a directory where it is recommended to store all the KPIs files as inputs for the M5.1 (Generate MapInfo & GoogleEarth cells/sites objects based on KPIs values);

MapInfo -> directory related to the representation in MapInfo of the 3G & 2G mobile networks + their associated 3G->3G & 3G->2G Neighbors:

- **2G** -> directory where the tool is storing the 2G MapInfo Sites & Cells tables (automatically generated & stored here by M1.2 & M5.1);
- **3G** -> directory where the tool is storing the 3G MapInfo Sites & Cells tables (automatically generated & stored here by M1.2 & M5.1);

- **Drive_Tests** -> directory where the tool is generated (for each study case) a directory representing the output of the files resulted after the Drive Test Analysis/Optimisation activity in MapInfo specific format -> [M4.1 outputs];
- **Neigh_CT_MI** -> directory where the tool is generated (for each study case) a directory representing the output of the files resulted after the Call Traces Analysis/Optimisation activity in MapInfo specific format -> [M4.2 outputs];
- **Neigh_DB** -> directory where it is recommended to be stored all the external neighbors definitions files (3G-3G/3G-2G/2G-2G) -> [Input data for M3.2];
- **Neigh_DB-MI** -> directory where the tool is storing the neighbors generated in MapInfo format having as input external neighbors file [M3.2 outputs];
- **Neigh_MI_Delta_Export** -> directory where it is recommended to be stored all the neighbors changes (3G-3G and/or 3G-2G) performed visually in MapInfo and then exported as *.csv files [M3.3 outputs];
- **Neigh_MI_Delta-OMC** -> directory where the tool is storing the generated Work Orders [WO] related to the neighbors changes (3G-3G and/or 3G-2G) performed visually in MapInfo; the WO reports files are generated into the right format ready to be loaded directly into OMC after performing the format conversion Neigh_MI_Delta_Export -> Neigh_MI_Delta-OMC [M3.1 (top option) outputs];
- **Neigh_OMC-MI** -> directory where the tool is storing its proprietary MapInfo (formats) generated files related to all the currently defined Neighbors 3G->3G & 3G->2G declared into the 3G Network as they are stored into OMC snapshot file [M3.1 (low option) outputs]; these output files are used as input for M3.3;

MobileNW_Config -> directory containing the configuration data regarding the 3G & 2G mobile networks:

- **MobileNW_Config.xls** -> Agileto (default) reference database file containing the 3G & 2G (sheets) with the 3G & 3G cells database information;
- **MobileNW_Config_New** -> directory where there it will be saved automatically all the new generated/updated Agileto database files (output M1.1);
- **MobileNW_External_DB** -> directory where it is recommended to keep the external Excel (3G & 2G) database files (used as inputs for M1.1);
- **OMC-2G_Export** -> directory where it is recommended to be stored the 2G network OMC export files (used usually as input for M2.1, top option);

OMC_Snapshots -> directory where are recommended to be stored the OMC 3G snapshot files (*.xml, *.xcm, *.txt); this path location will be used as the default input path by the tool for the OMC snapshot files.

Modules available

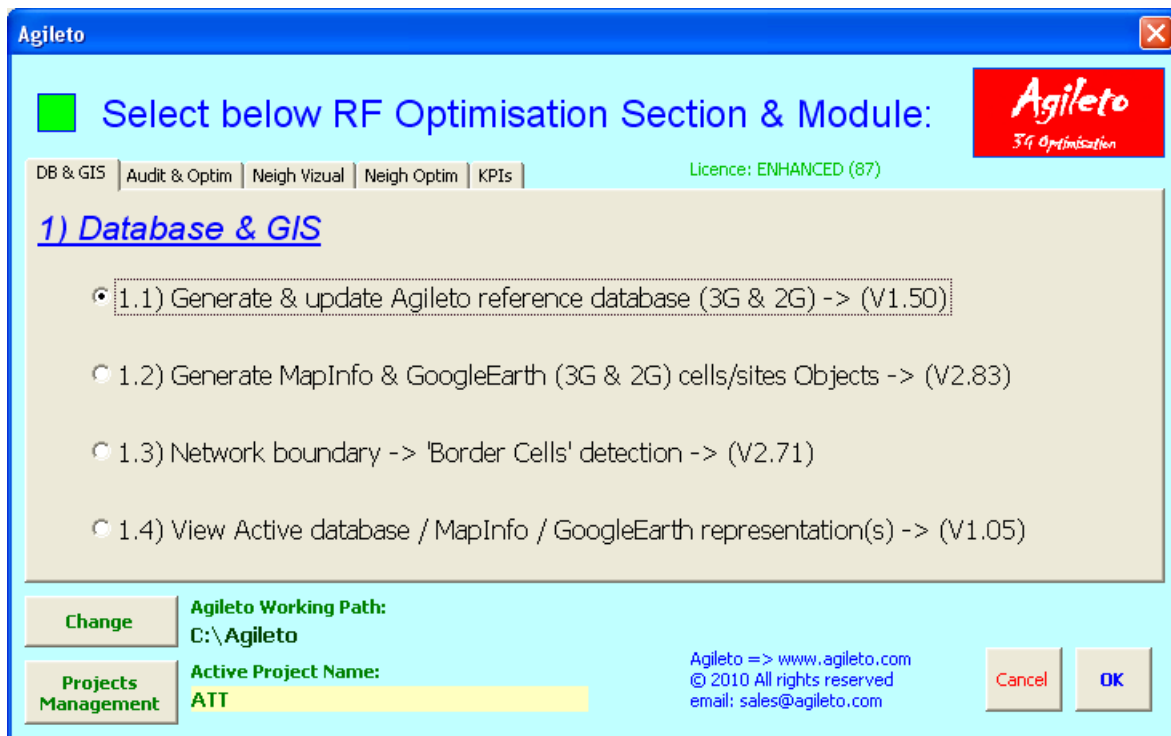
Database & GIS

1.1) Generate and update Agileto reference database (3G & 2G)

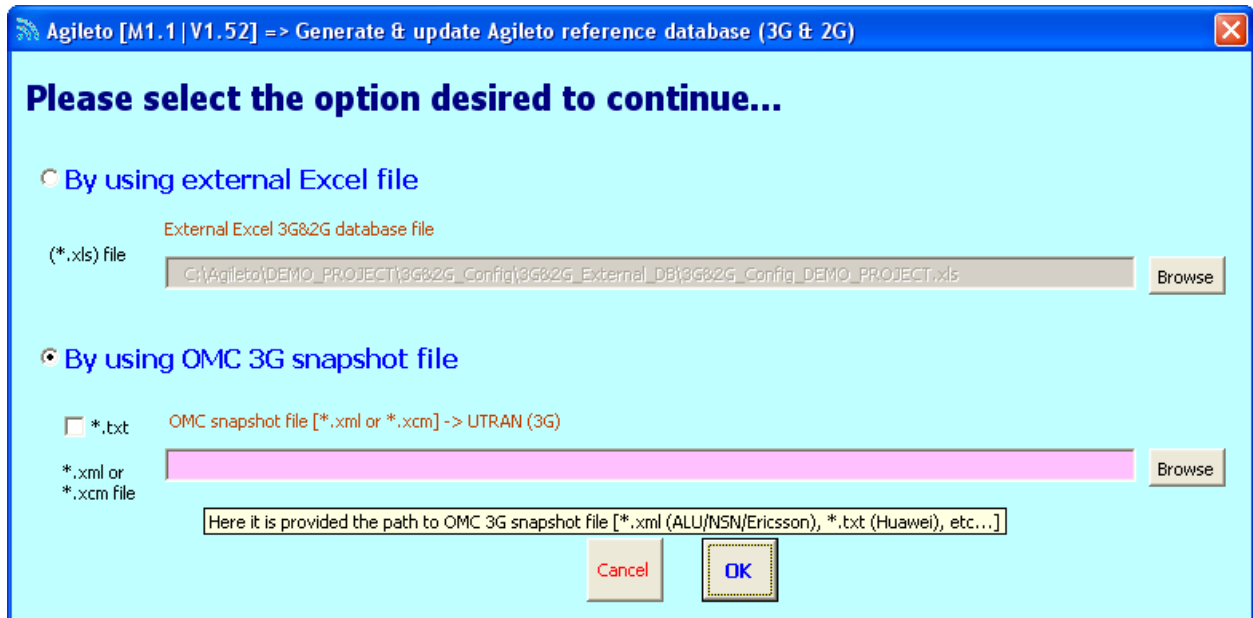
For more details / information regarding the format & structure of Agileto's reference database file please see the Annex named '[Agileto reference database \[MobileNW_Config.xls\]](#)'.

Initially, before starting to work properly on a project, you will need to generate Agileto reference database related to that project that is in fact the file named generic MobileNW_Config.xls. This operation may be completed in 2 steps. The first step is by using **File #1** and the second step is by using **File #2** (see "[Before you start](#)").

Step 1



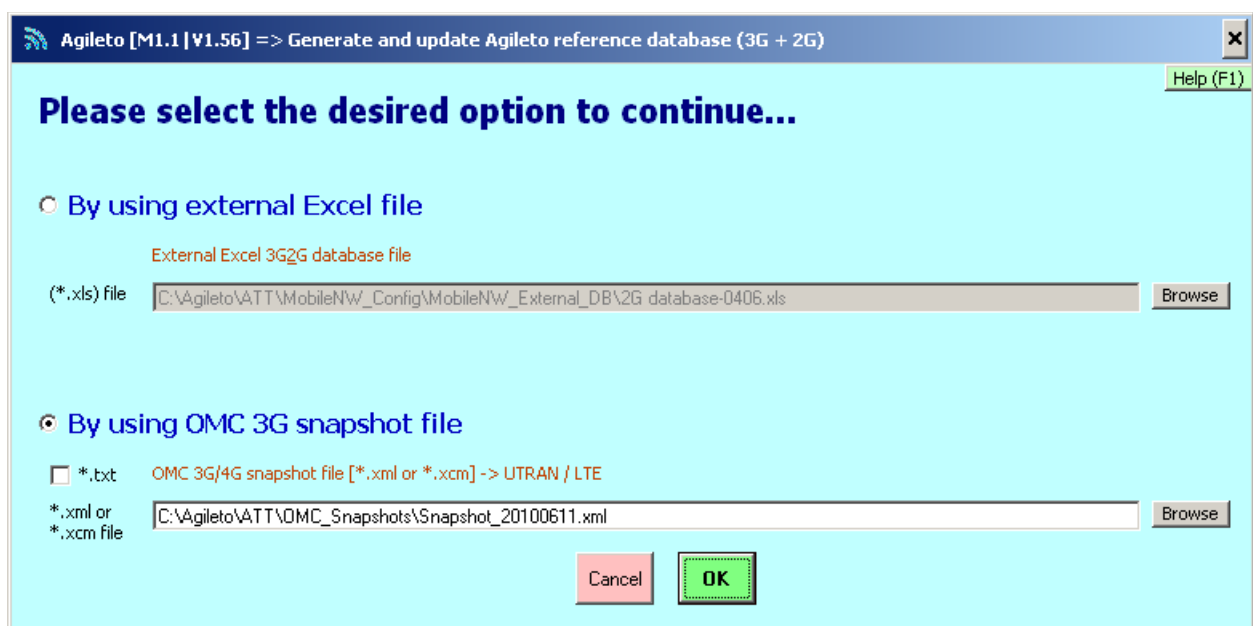
Choose OK and you will have:



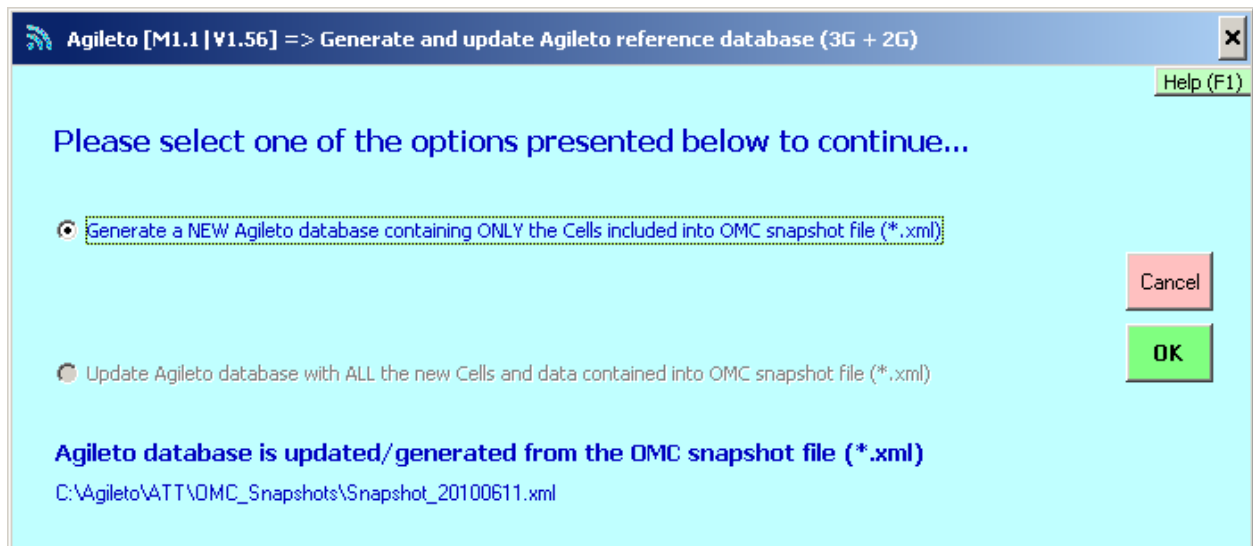
Now you have to select the second option “**By using OMC 3G snapshot file**” and to provide the relevant information.

OMC 3G snapshot configuration file contains the 3G/2G network configuration details and may be obtained in different formats: *.xml, *.xcm, *.txt - up to the 3G equipment vendor. This file was named initially **File #1** (see chapter “[Before you start](#)”).

Please notice that you should ‘tick’ the option ***.txt** into the form presented above in case you would like to use/select OMC 3G configuration files as *.txt formats (usually this is the case for Huawei OMC 3G snapshot files format).

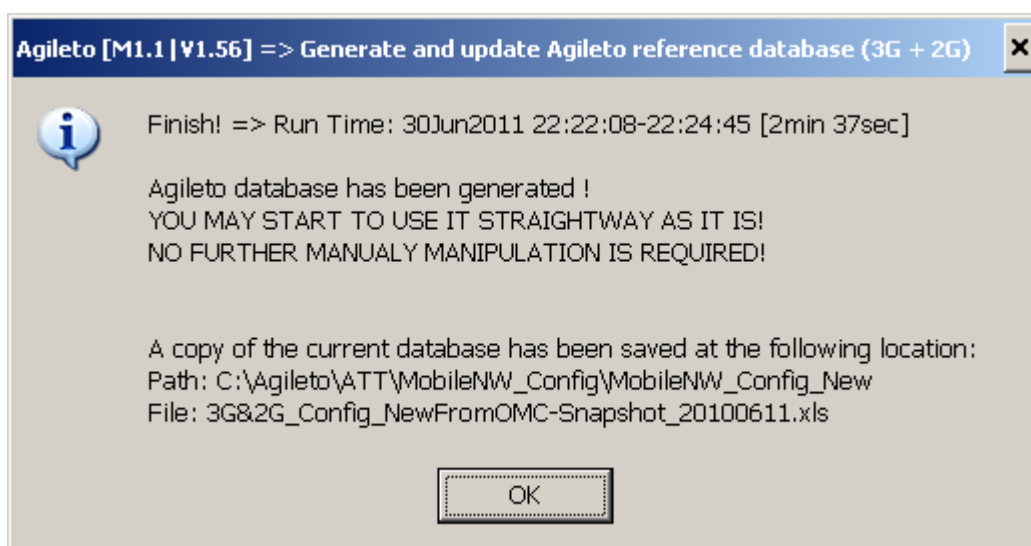


Choose OK and you will get the following window:



Initially, only the top option is available -> **“Generate a NEW Agileto database containing ONLY the Cells included into OMC snapshot file”**, then push OK.

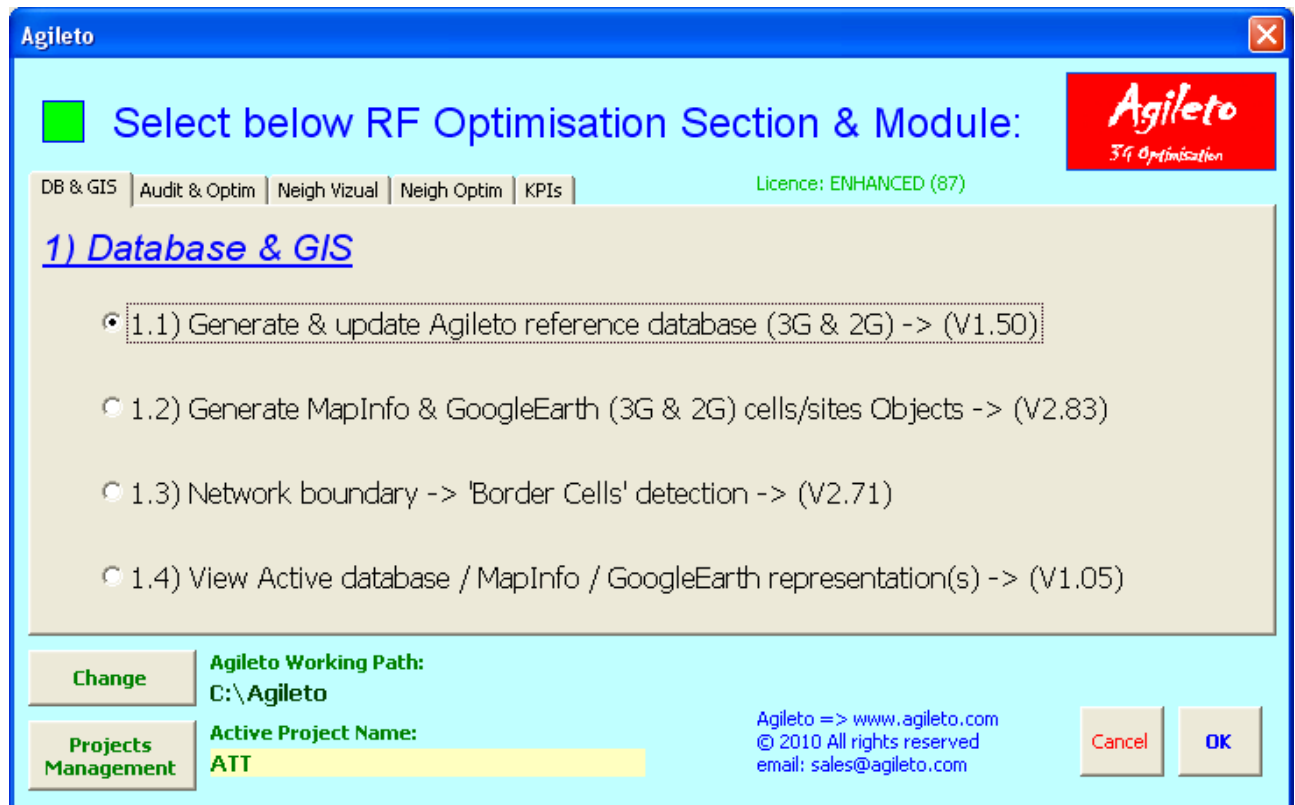
When the module finished its work you will get a similar window like below:



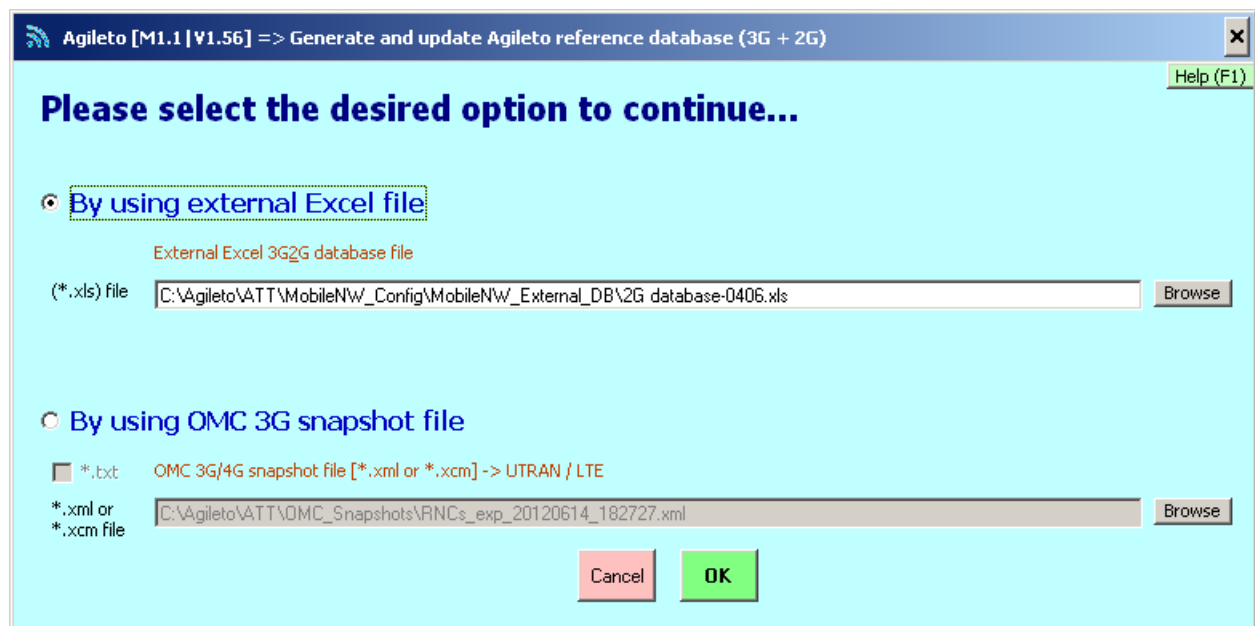
Please notice that a file copy of the new generated Agileto’s database was saved on the path location and file name as per they are mentioned into the above message. This message is just for the info (backup) purpose as now Agileto’s database (3G & 2G) has been already generated based on the info contained into the OMC 3G snapshot file.

However, the geographically coordinates and the azimuths of the cells are not usually contained into OMC 3G snapshots files, therefore the next ‘Step 2’ is necessary to be performed in order to add the 3G & 2G cells geographically information to Agileto’s database as it will be presented below.

Step 2: Choose again module M1.1 and click OK.



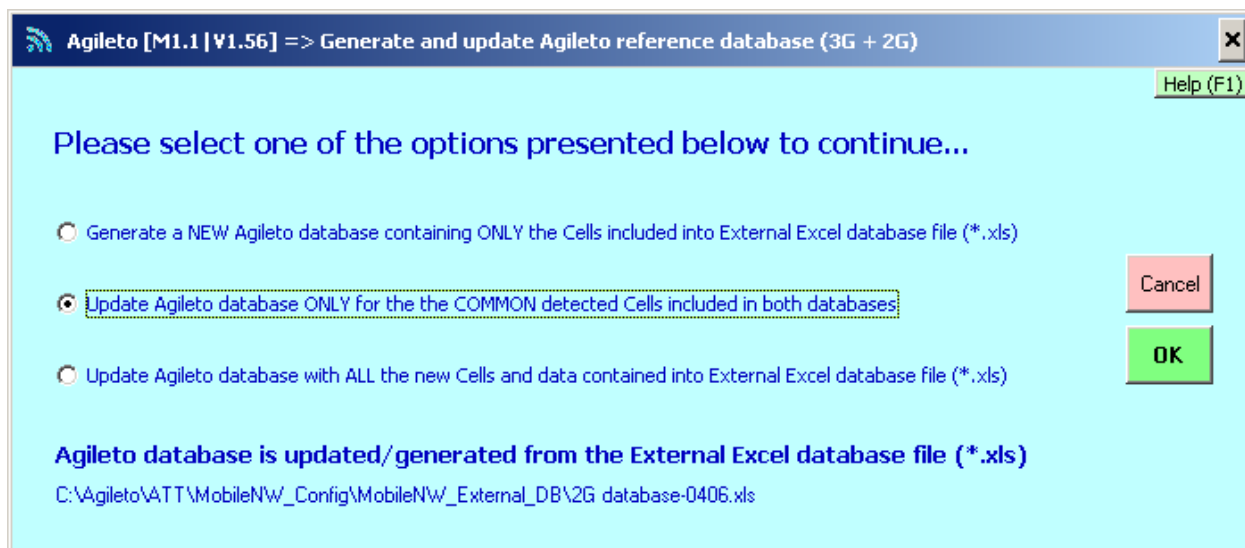
Choose OK and you will have the following window:



Now you have to choose the option “**By using external Excel file**”.

For the top “(*.xls)” file you have to provide **File #2** (see chapter “[Before you start](#)”) which is an Excel file exported from the Planning Tool or from the mobile operator database containing some mandatory information.

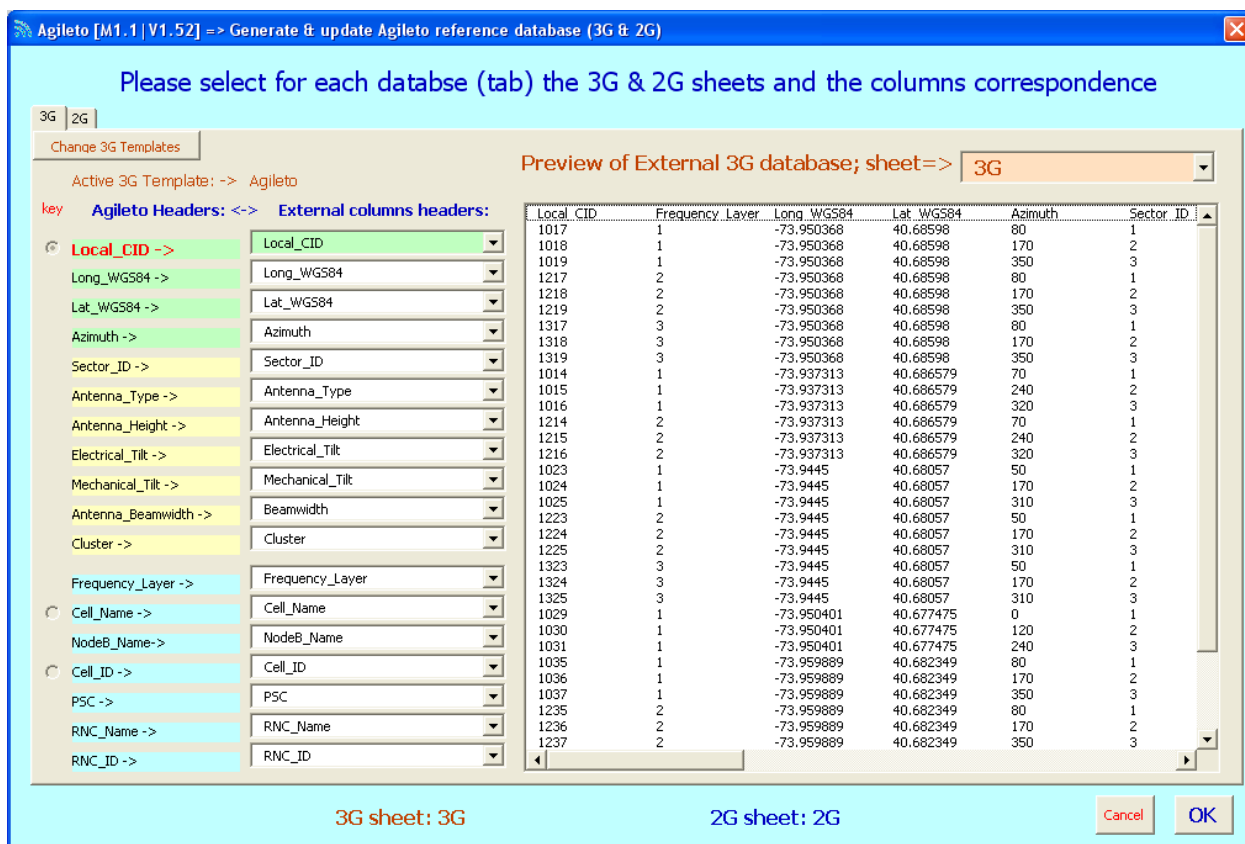
Choose OK and you will have:



Choose “Update Agileto database ONLY for the common detected Cells included in both databases” then push OK.

Observation:

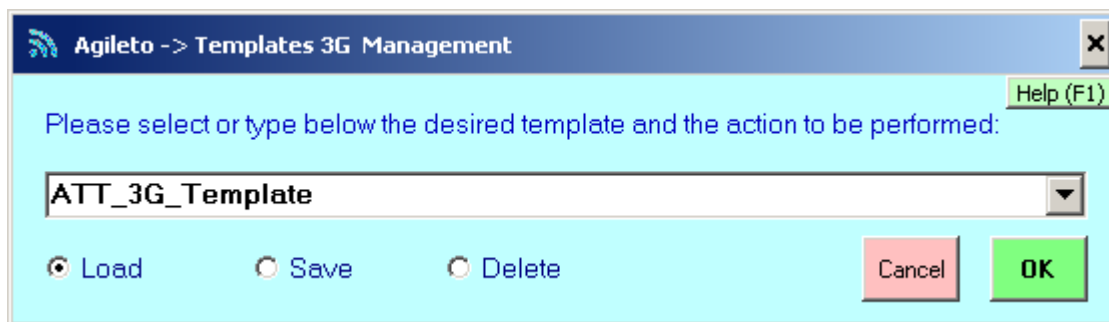
If may skip the step 1 presented above and you may want to generate directly Agileto reference database only “By using External Excel file”; this case you will need to select above the option “Generate a NEW Agileto database file containing ONLY the Cells included into External Excel database file (*.xls)”



Like into the example presented above for the 3G network [select first the 3G tab (top left selection into the above form)] you have then to choose the right sheet (top right selection => Ex: 3G) from the External Excel database which is providing the desired

3G information to be imported/updated; then you will need to select the good columns associations between the standard Agileto header names and their currently names detected into the External Excel database file.

For the purpose of storing/retrieving quickly the specific user columns correspondence into different 3G (2G) Templates there is available a button (see on top left the button **Change 3G Template**) which is managing the Active 3G (2G) Template as per the picture presenting below:



Please notice that during the usage of this module [M1.1] for the purpose of updating Agileto reference database you may not want sometimes to update either 3G or 2G Agileto database with the data contained into the external Excel file. This case you should select for that respective database (3G or 2G -> select accordingly the top left tab) an empty/blank sheet (top right) into the general form presented above.

Each database (3G/2G) has a unique common reference key to be selected for the column association between the external Excel file and Agileto database. The common reference key is presented with red color into the above form (Ex: for 3G database the key is **Local_CID**) and this reference key is mandatory to be associated with a corresponding column from the external Excel database file. If the common reference key column association is not provided then the tool cannot continue and the form cannot be closed when pressing “OK” button.

Example of the selections & settings to be performed for the 3G database:

Agileto [M1.1 | V1.49] -> Generate & update Agileto reference database (3G & 2G)

Please select for each database (tab) the 3G & 2G sheets and the columns correspondence

3G 2G

3G Database => Columns correspondence Preview of External 3G database; sheet=> Trx

key

Local_CID -> Cid
Long_WGS84 -> Long
Lat_WGS84 -> Lat
Azimuth -> Azimuth (°)
Sector_ID -> Sector NR
Antenna_Type -> Antenna
Antenna_Height -> Height (m)
Electrical_Tilt -> Additional Electrical Down tilt (°)
Mechanical_Tilt -> Mechanical Down tilt (°)
Antenna_Beamwidth ->
Frequency_Layer ->
Cell_Name ->
NodeB_Name ->
Cell_ID ->
PSC ->
RNC_Name ->
RNC_ID ->

3G sheet: Trx

2G sheet: Cells

Cancel OK

Mandatory Info -> Green background

This is the info to be imported usually from the external Excel database

Optional Info -> Yellow background

Optional Info -> Blue background
Usually this info is NOT imported from external Excel database;
This info is retrieved usually from OMC snapshot files.

Lat	Long	Cid	Antenna	Height (m)	Azimuth (°)
48.971238	-0.61084	739636	44	0	120
48.971238	-0.61084	739636	44	0	240
48.971238	-0.61084	739636	44	0	110
49.271574	0.106081	28771	A42UG_03	30	240
48.832427	-0.889226	739630	33	0	120
48.832427	-0.889226	739630	33	0	240
49.33504	-0.321542	49739	A5000_T6	37	120
49.33504	-0.321542	49739	A5000_T6	37	240
49.193388	-0.027959	16574	K42UG_04	36	120
49.193388	-0.027959	16574	K42UG_04	36	240
49.174205	-0.189176	17063	17063	0	120
49.174205	-0.189176	17063	17063	0	240
49.174205	-0.189176	17064	50274	0	120
49.413995	0.236061	50014	50014	0	120
49.413995	0.236061	50015	50015	0	120
49.413995	0.236061	50016	50016	0	120
49.324761	-0.623944	20217	20217	0	120
49.324761	-0.623944	20215	20215	0	120
49.213197	-0.540465	746	746	0	120
49.213197	-0.540465	744	744	0	120

Similar operation should be performed for the 2G network. To complete this task you should select the 2G (network) tab into the form presented above (top left section) and perform similar settings. After this you have to push OK button.

Example of the selections & settings to be performed for the 2G database:

Agileto [M1.1 | V1.49] -> Generate & update Agileto reference database (3G & 2G)

Please select for each database (tab) the 3G & 2G sheets and the columns correspondence

3G 2G

2G Database => Columns correspondence Preview of External 2G database; sheet=> 2G_Trx

key

Cell_ID -> CI
Long_WGS84 -> Long
Lat_WGS84 -> Lat
Azimuth -> Azimuth (°)
Sector_ID -> Sector NR
Cell_Name -> Transmitter
Site_Name -> Site
Antenna_Type -> Antenna
Antenna_Height -> Height (m)
Electrical_Tilt -> Additional Electrical Down tilt (°)
Mechanical_Tilt -> Mechanical Down tilt (°)
Antenna_Beamwidth ->
LAC -> LAC
bcch -> BCCH_Frequency
ncc -> NCC
bcc -> BCC

3G sheet:

2G sheet: 2G_Trx

Cancel OK

Mandatory Info -> Green background

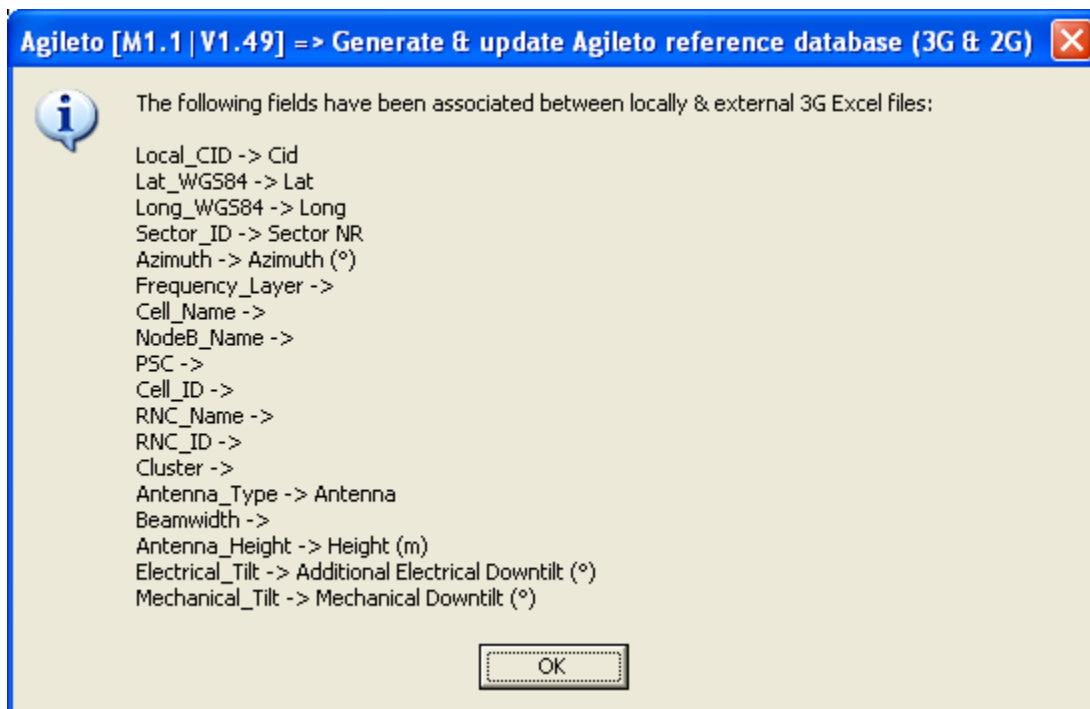
This is the info to be imported usually from the external Excel database

Optional Info -> Yellow background

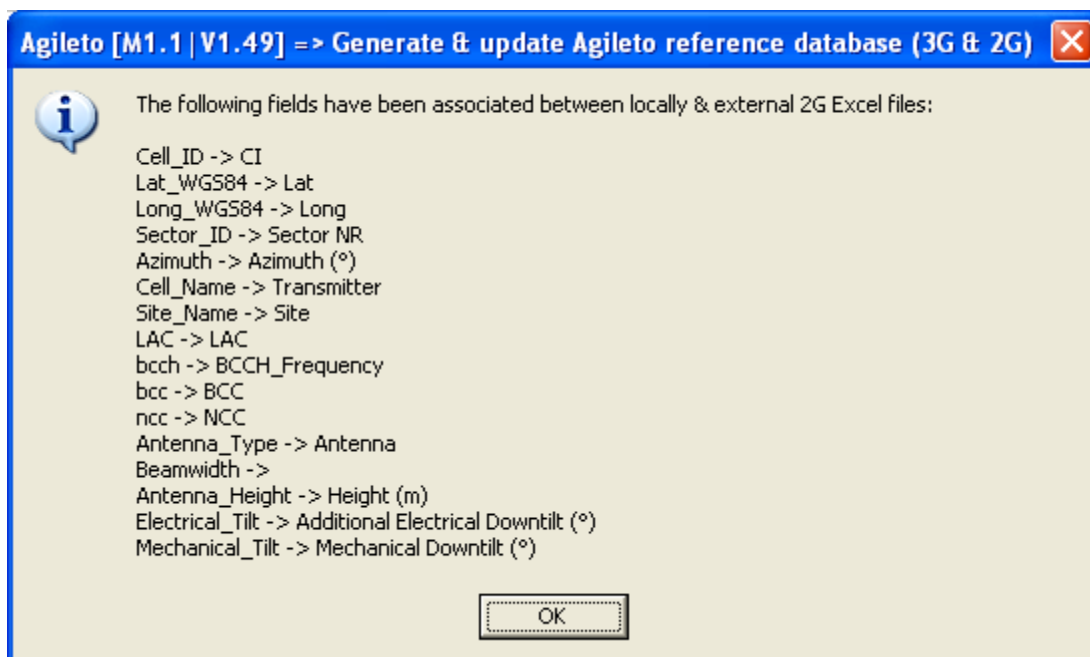
Recommended Info -> Blue background
This info is RECOMMENDED to be imported from external Excel 2G database file although it may be retrieved initially from OMC 3G snapshot files.

Site	Long	Lat	Transmitter	Sector NR	CI
00008949N1	1.360368	46.505613	00008949N1_G0	1	24662
00008949N1	1.360368	46.505613	00008949N1_G1	2	24670
00008949N1	1.360368	46.505613	00008949N1_G2	3	24663
00008953N1	1.249726	46.482157	00008953N1_G1	1	25944
00012631N1	0.93705	46.630588	00012631N1_G0	1	25945
00012631N1	0.93705	46.630588	00012631N1_G1	2	59760
00012631N1	0.93705	46.630588	00012631N1_G2	3	59785
140001	0.106081	49.271574	140004_G0	1	59860
140001	0.106081	49.271574	140004_G1	2	1401
140001	0.106081	49.271574	140004_G2	3	1401
140002	0.106081	49.271574	140004_G0	1	1401
140002	0.106081	49.271574	140004_G1	2	21401
140002	0.106081	49.271574	140004_G2	3	21402
140004	0.106081	49.271574	140004_G0	1	21402
140004	0.106081	49.271574	140004_G1	2	1404
140006	0.069864	49.33504	140007_G0	1	1406
140006	0.069864	49.33504	140007_G1	2	11406
140007	0.069864	49.33504	140007_G0	1	21406
140007	0.069864	49.33504	140007_G1	2	11407
140008	0.069864	49.33504	140007_G0	1	1407
140008	0.069864	49.33504	140007_G1	2	11407
140010	0.069864	49.33504	140007_G0	1	1407
140010	0.069864	49.33504	140007_G1	2	11407
140011	0.069864	49.33504	140007_G0	1	1407
140011	0.069864	49.33504	140007_G1	2	11407

After pressing the “OK” button a summary standard column correspondence is provided for each database (3G and 2G) like it is presented below (where no column correspondence is provided then the standard correspondence show nothing):



Choose OK again and similar information will be provided for the 2G network.

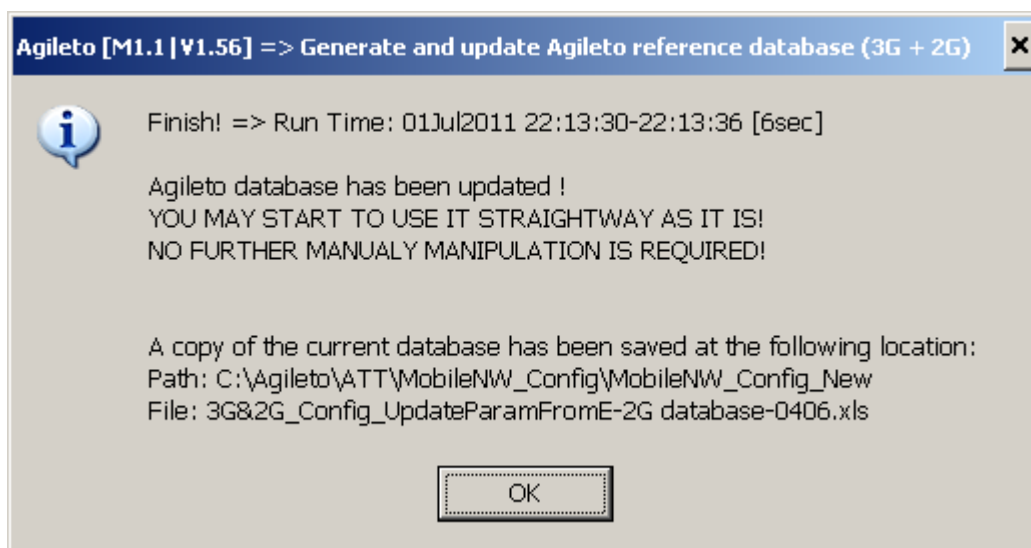


OBS.

In case that the 2G (3G) network information was not provided, you will get the following message:



Choose OK and you will be notified with the confirmation message about Agileto's database update. Additionally, it is generated automatically a copy of the new updated Agileto's reference database like presented into the below message. This message is just for the info (backup) purpose as now Agileto's reference database has been already generated based on the info contained into the OMC 3G snapshot file (Step 1) and then updated with the info contained into external Excel file (Step 2).



Choose OK again and you have just completed the run for the module M1.1.

Notice: You may open anytime Agileto reference database for the Active project by using the module M1.4 (top option).

Remarks:

1) It is important to remark that you may update any time Agileto's **reference** database file [**MobileNW_Config.xls**] from different sources (OMC 3G snapshot file and/or External Excel database file) by using the module M1.1. The 3G and/or 2G mobile networks sheets (Agileto's reference database) may be updated anytime, together or separately, in single/many steps, according with the data available included into the input sources.

2) Agileto tool is pointing always automatically to its default reference database file [...Agileto Working Path \Agileto\ProjectName\MobileNW_Config\MobileNW_Config.xls] during the time of running all its modules. By splitting the working activity on different projects it will be always a dedicated Agileto's reference database file (MobileNW_Config.xls) associated to each project.

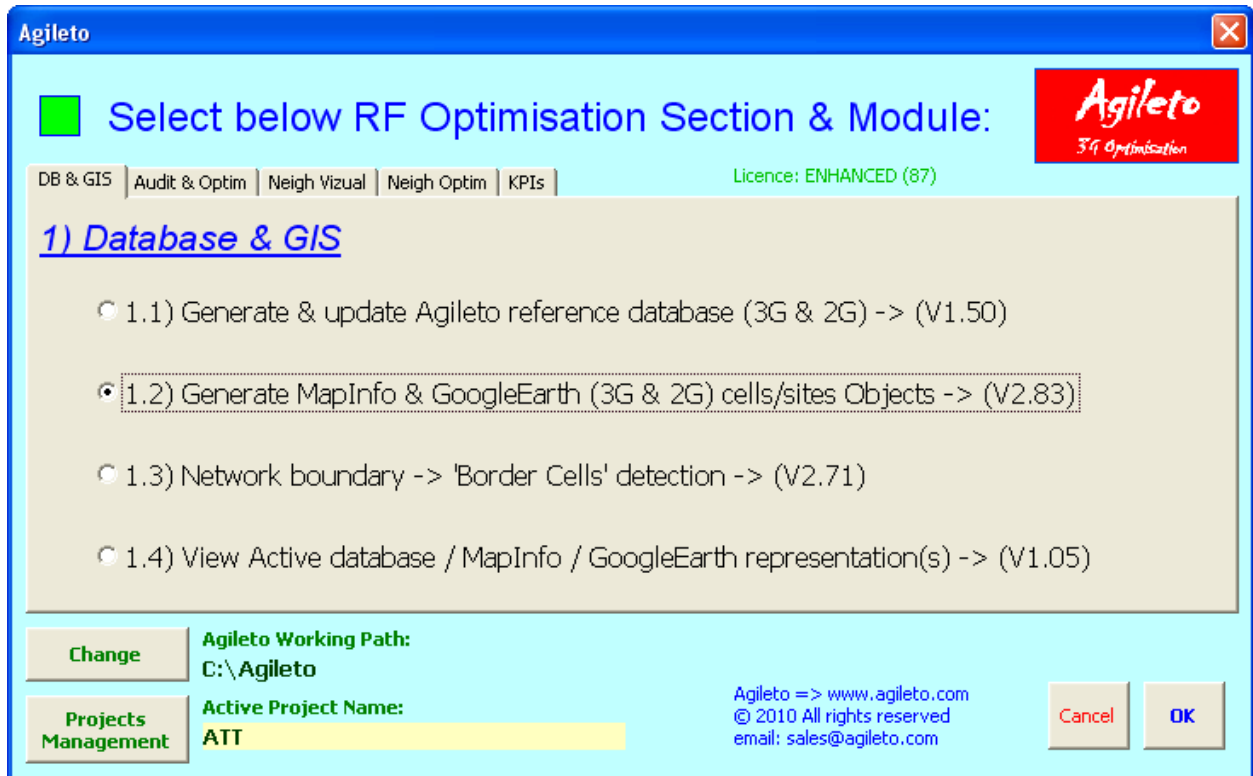
Obs:

ProjectName -> It is the name of Agileto's "Active project name" -> this is the consequence of the new concept of working on different projects introduced since Agileto engine version 36.685.

1.2) Generate MapInfo & GoogleEarth (3G & 2G) cells/sites objects



Choose Start option and after this, module nr. 1.2)



Choose OK and you will have:



Press OK and you will get the next window where you may customize the settings related to the generation of the 3G + 2G sites & cells into MapInfo & Google Earth.

Agileto [M1.2 | V2.88] => Generate MapInfo & GoogleEarth (3G & 2G) cells/sites Objects

Please select below the settings (Input) for the generation
-- of the 3G/2G networks in MapInfo and Google Earth --

3G Network:

☒ All 3G cells declared into database will be represented <- OR -> ☐ Only 3G cells declared into database and detected into 3G OMC will be represented

☐ 3G cells not detected into OMC will be colored in 'Grey' <- OR -> ☒ 3G cells not detected into OMC will be colored standard like the others 3G cells

2G Network:

☒ All 2G cells declared into database will be represented <- OR -> ☐ Only 2G cells declared into database and detected into 2G OMC will be represented

☐ 2G cells not detected into 2G OMC will be colored in 'Pink' <- OR -> ☒ 2G cells not detected into 2G OMC will be colored standard like the others 2G cells

General settings (related to the reference 3G F1 [2GHz] layer):
[All the others 3G & 2G layers are referenced to 3G F1 layer]

Radius [Km]: Beamwidth [degrees]:

Please select below the desired outputs :

☒ Generate Google Earth files ☒ Generate MapInfo files

Google Earth output options:

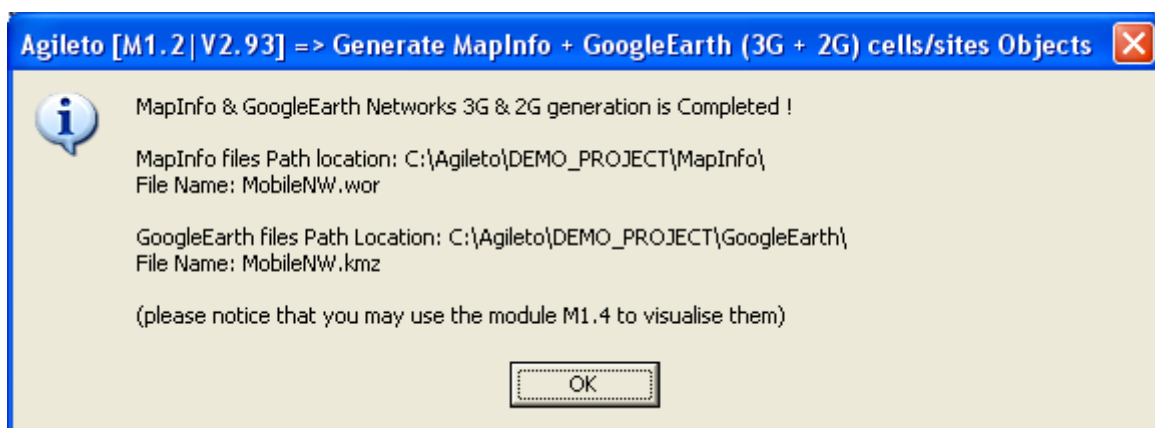
☒ SPATIAL (3D) Google Earth output ☐ PLAIN (2D) Google Earth output

Cancel OK

Please notice that it is recommended to generate the Google Earth outputs as Spatial in 3D in order to benefit at maximum from the spatial visualization (3G) available in Google Earth (see the example below).



Select the desired options/values into the main form then push OK button.



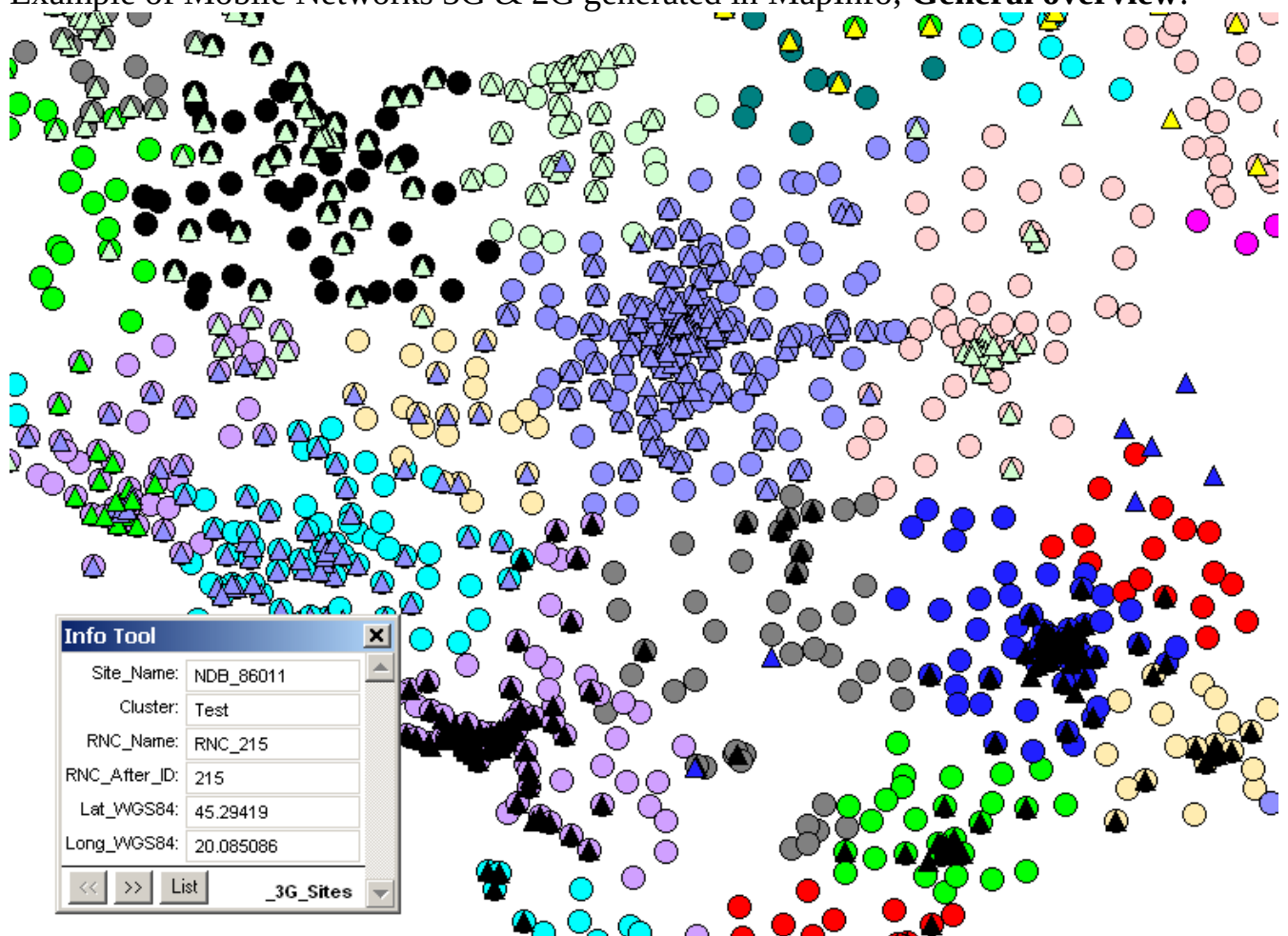
When the generation of the 3G & 2G mobile network files is completed the message presented above will be displayed, presenting the default location where the files have been saved. Notice that you may use the module [M1.4](#) in order to visualize in MapInfo and/or Google Earth the mobile networks 3G & 2G just generated.

Please notice the following remark on this module [M1.2] regarding to the generation of the 3G & 2G network objects in MapInfo & GoogleEarth:

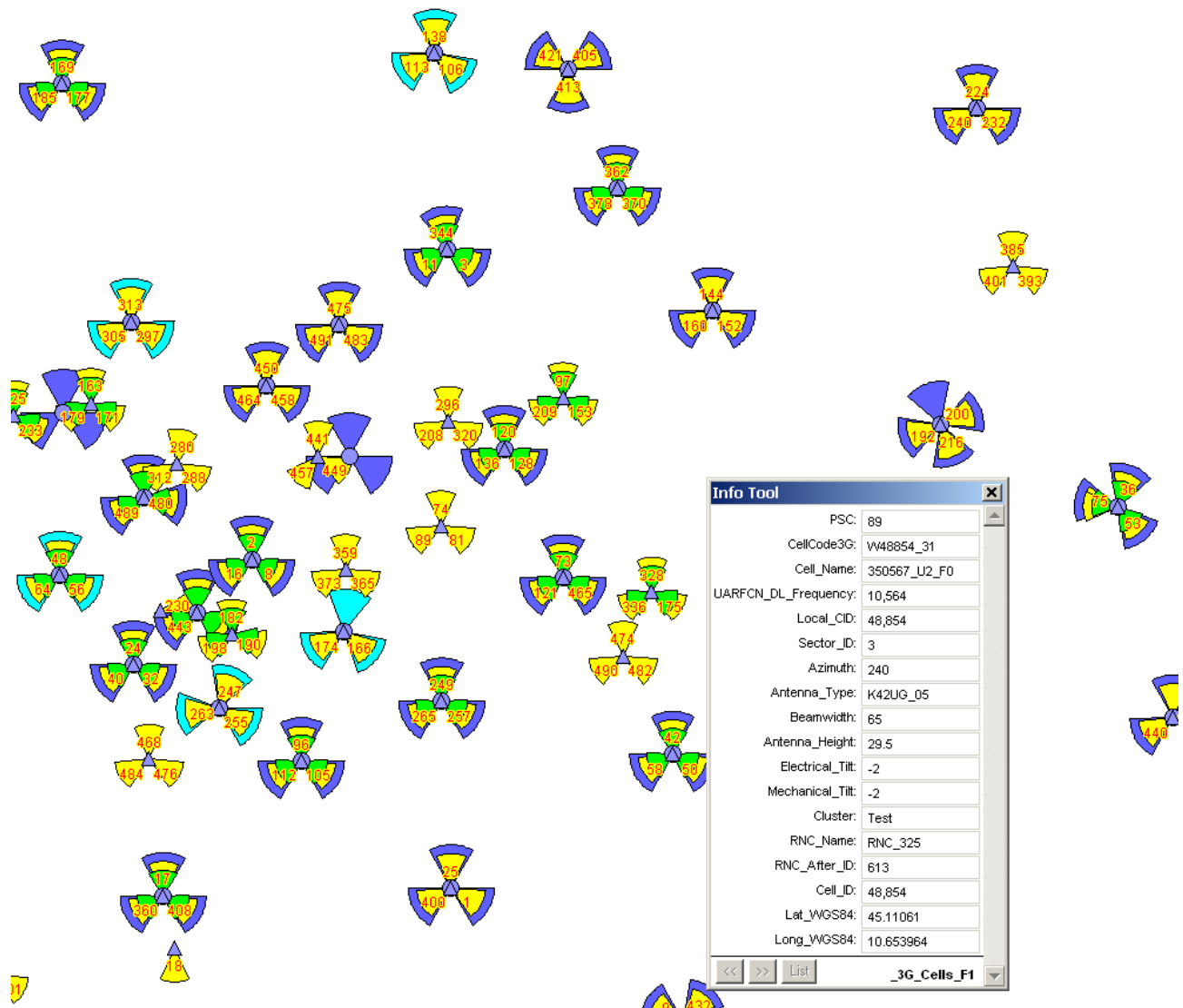
- The output MapInfo & GoogleEarth files (including all 3G & 2G info) are automatically generated & stored by the tool under the following Paths:

- **MapInfo:** ...\\Agileto\\ProjectName\\MapInfo\\MobileNW.wor
- **GoogleEarth:** ...\\Agileto\\ProjectName\\GoogleEarth\\MobileNW.kmz

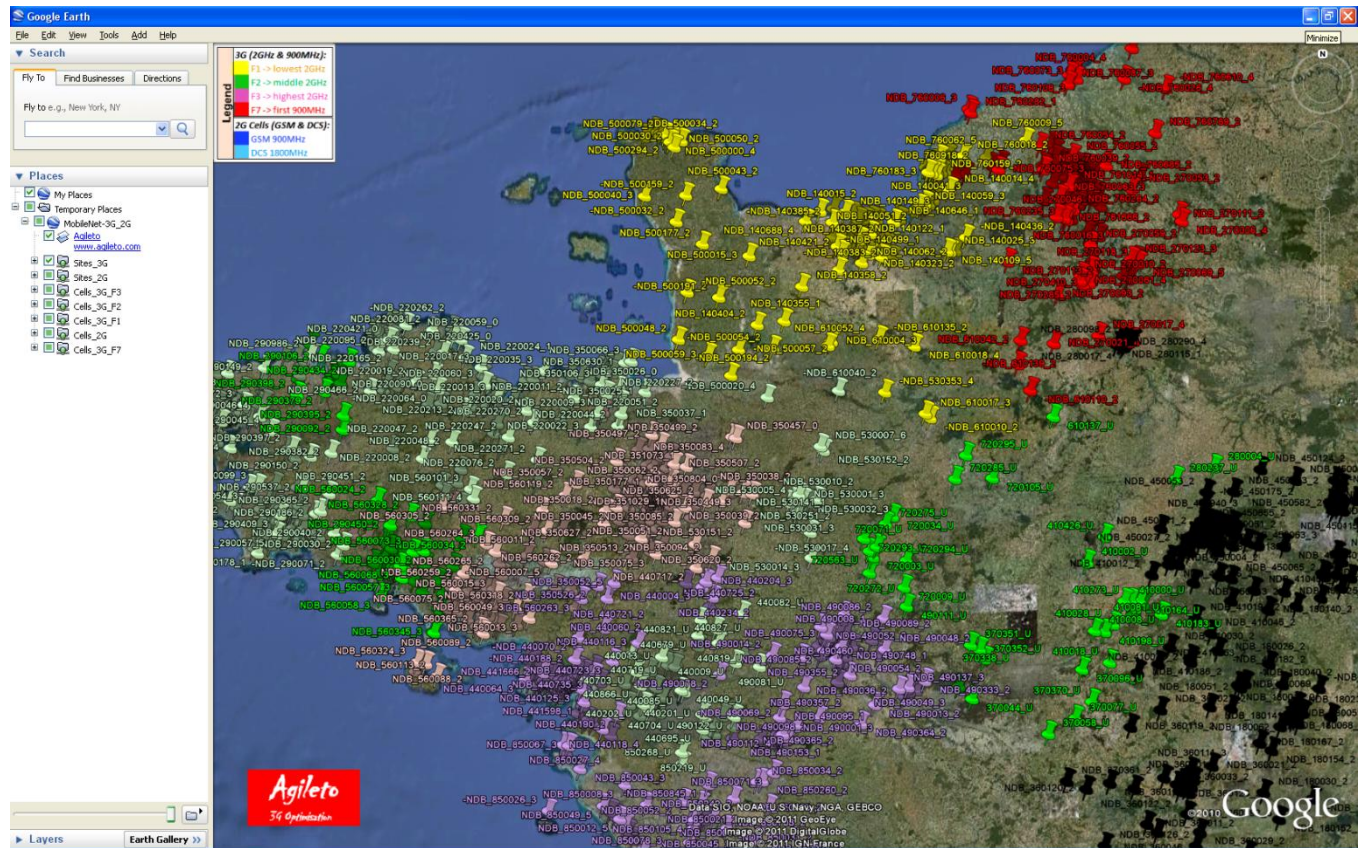
Example of Mobile Networks 3G & 2G generated in MapInfo; **General overview:**



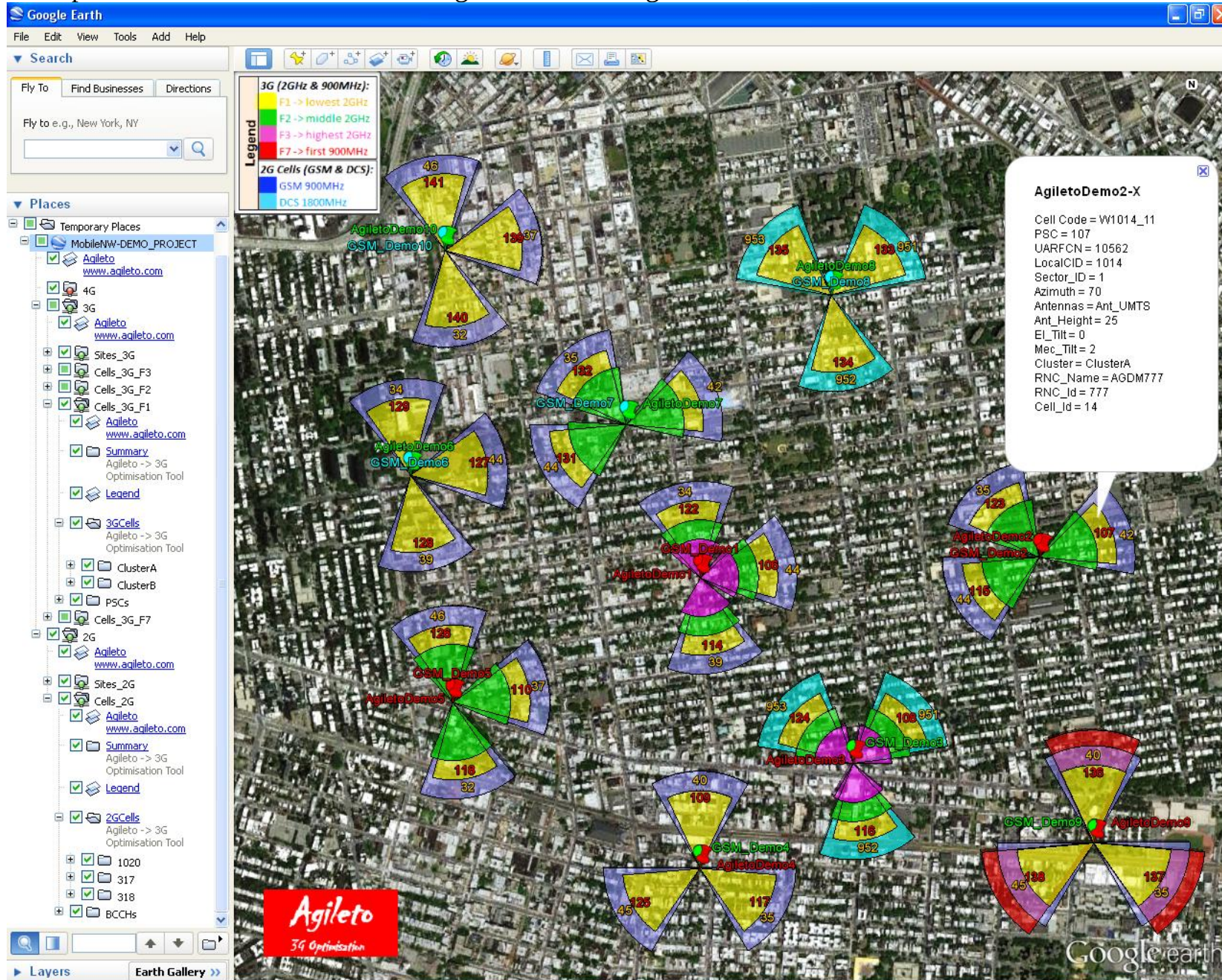
Example of Mobile Networks 3G & 2G generated in MapInfo; **Detailed view:**



Example of Mobile Networks 3G & 2G generated in Google Earth; **General overview:**



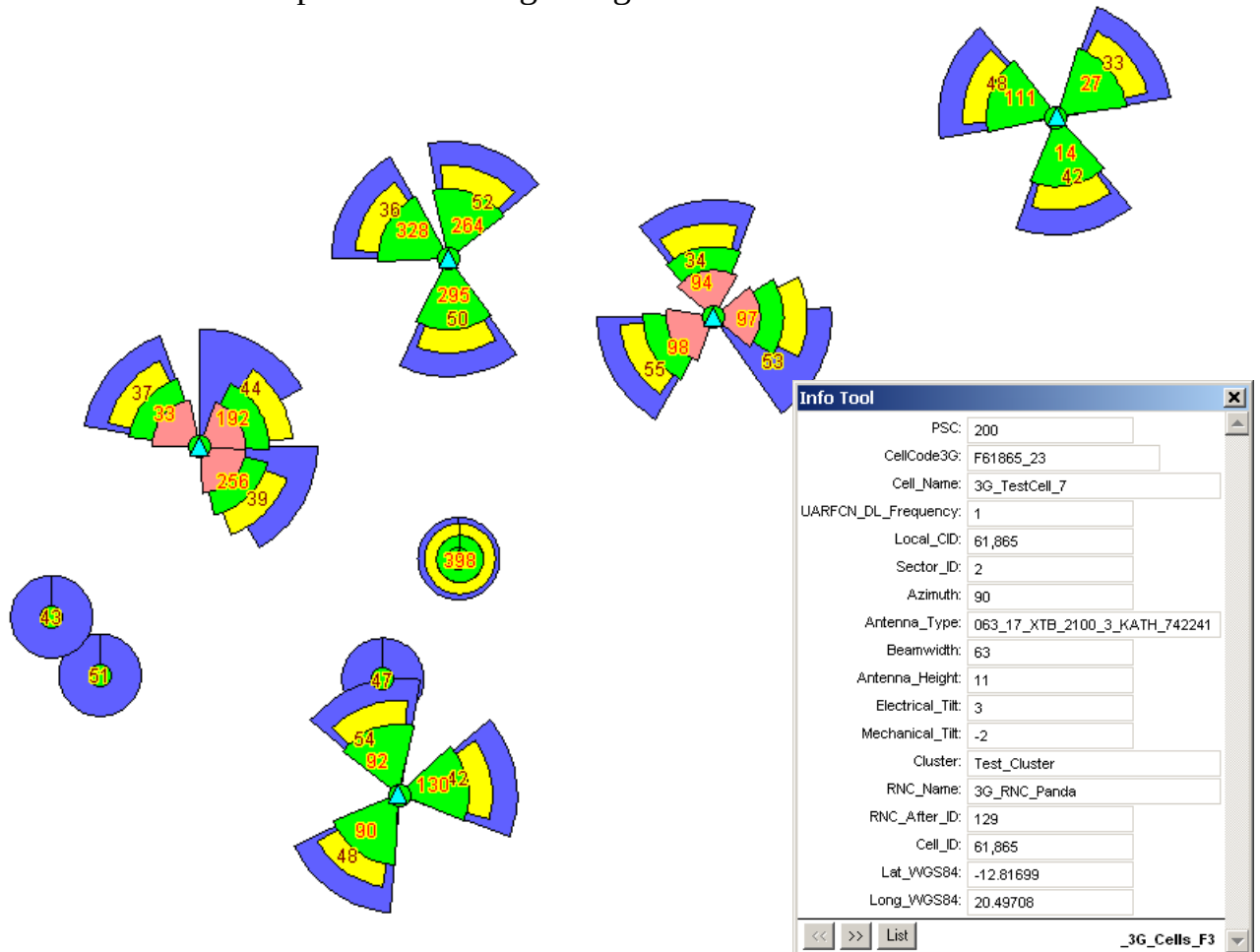
Example of Mobile Networks 3G & 2G generated in Google Earth; Detailed view:



Some additionally info easy to be noticed on MapInfo & Google Earth screenshots:

- The name of the representation in Google Earth (see the left panel) will be 'MobileNW-' followed by the name of the project (ex: **MobileNW-DEMO_PROJECT**, see the above picture);
- On GE (Google Earth) left sidebar, under the main folder (**MobileNW-DEMO_PROJECT**) it will be included the folders 4G, 3G and 2G and under each of them it will be placed the folders related to the associates sites and cells (see for details the above picture);
- On GE, in order to limit the loading of the entire 3G/2G networks/cells, the desired group of cells to be visualized may be selected based on their subfolders, as following (the same applies to PSCs & BCCHs):
 - **Cells_3G** -> by 3G **Cluster_Name** (or **RNC_Name** if the Cluster_Name info is missing);
 - **Cells_2G** -> by 2G **Cluster_Name** (or 2G **LACs** if the 2G Cluster_Name info is missing);
- Both MapInfo & Google Earth (3G & 2G sites/cells) representations are using the same legend colors and shapes like it will be presented below;
- All 2G sites (round bullets) belonging to the same Cluster/LAC have the same color (2G sites belonging to different LAC areas will have different colors);
- All 3G sites (triangles) belonging to the same Cluster/RNC will have the same color (3G sites belonging to different RNC areas will have different colors);
- 2G Cells are always displayed with Blue colors, as following:
 - **GSM 900MHz** -> dark blue
 - **DCS1800MHz** -> light blue;
- 3G Cells color association regarding the Frequency layer legend:
 - **3G_Layer_F1** -> yellow (2GHz band lowest UARFCN frequency);
 - **3G_Layer_F2** -> green (2GHz band);
 - **3G_Layer_F3** -> brown (2GHz band);
 - **3G_Layer_F7** -> pink (900MHz band lowest UARFCN frequency);
- 3G/2G cells having omni-directional antennas will be presented with circles;

Please see below MapInfo details regarding the 3G & 2G sites/cells colors codes:

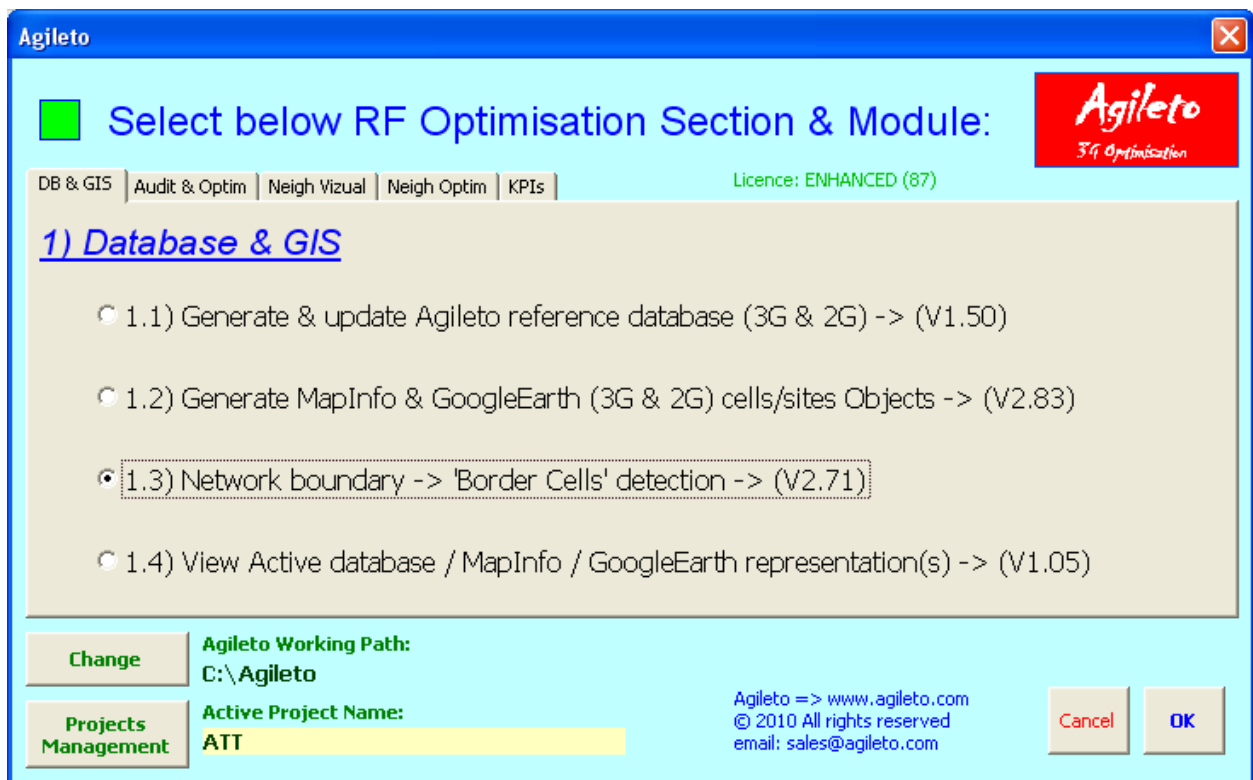


1.3) Network boundary: 'Border Cells' detection

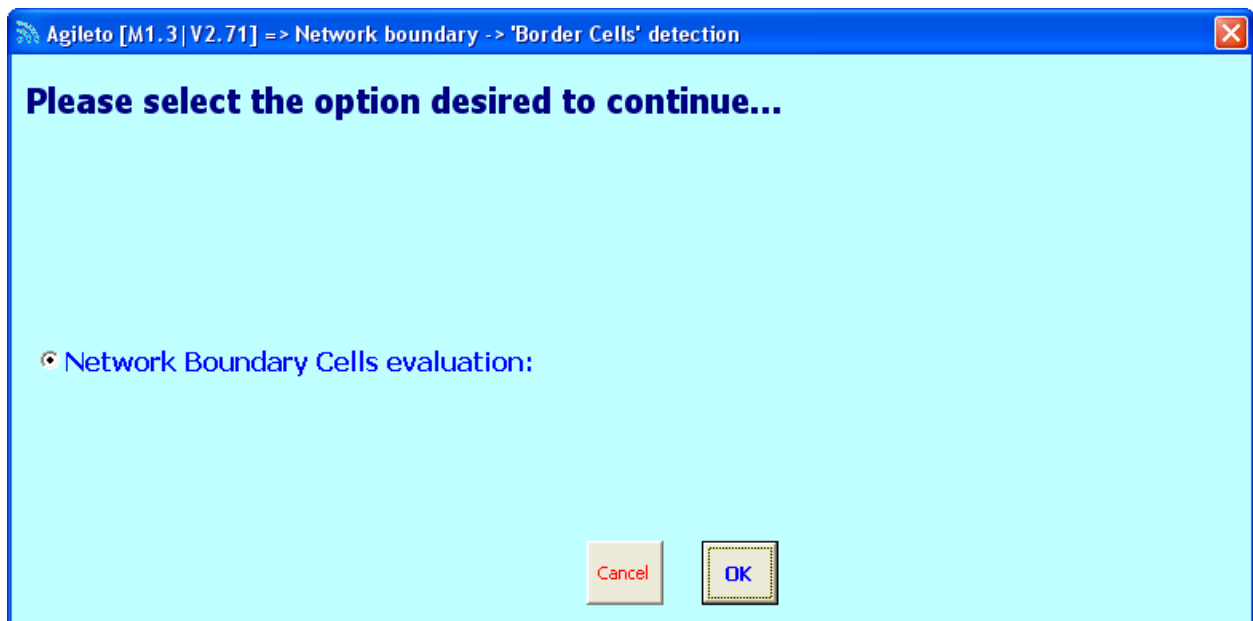
This module is used to evaluate the 'Border Cells' meaning the cells which are pointing outside of the main 3G coverage area representing a special class of cells.



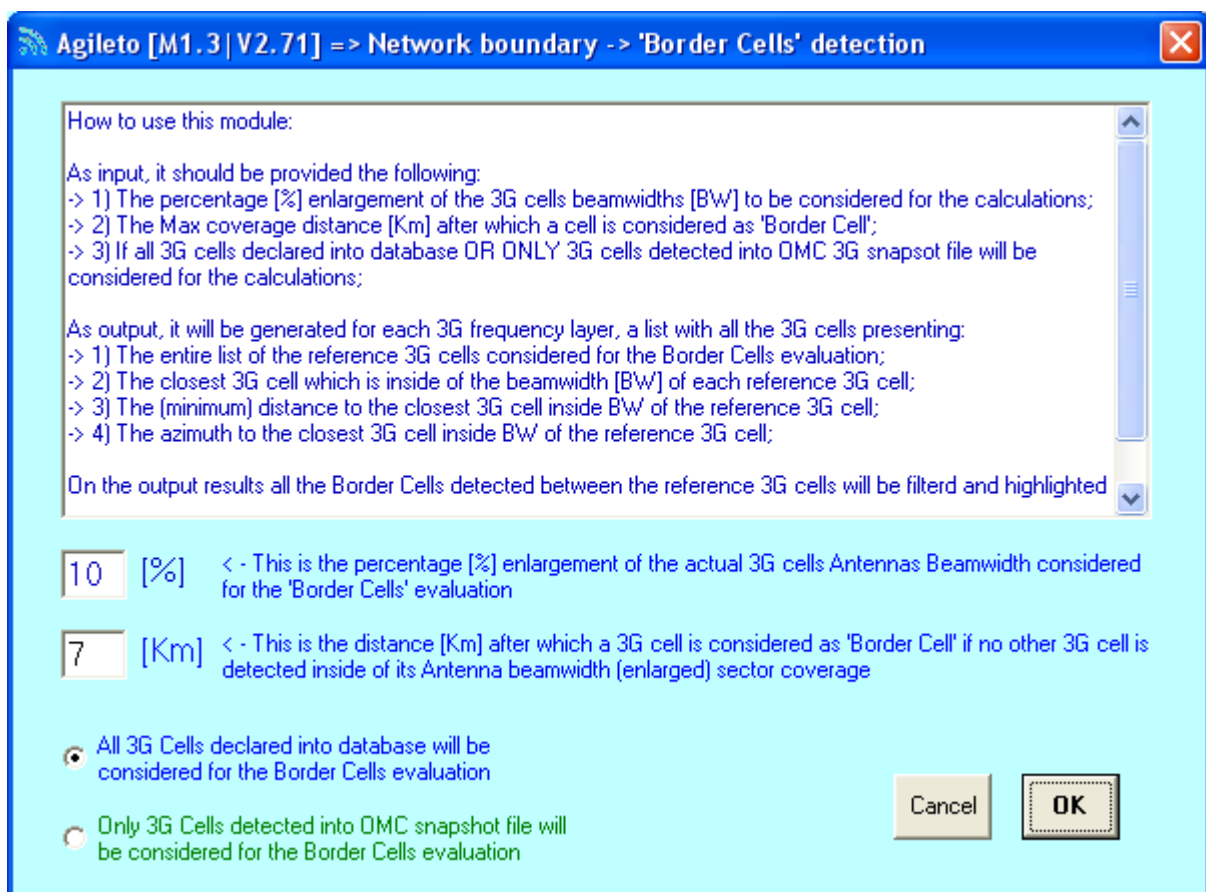
-> Choose Start option and after this, module M1.3:



Choose OK and you will get the following window:



Press OK button and you will get the next window:

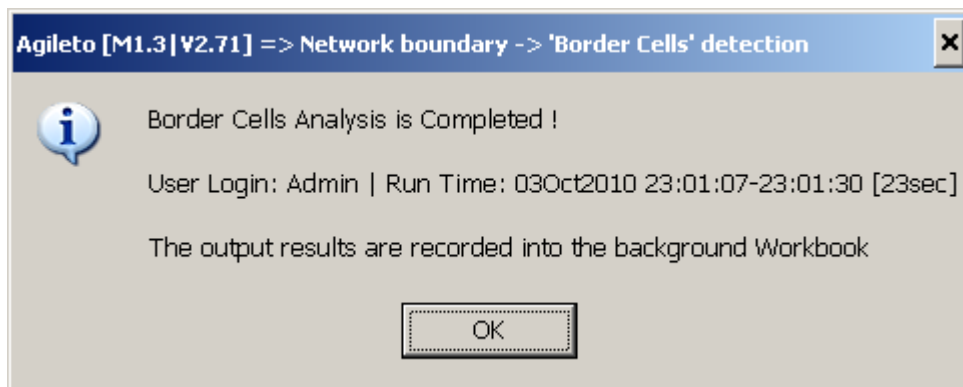


You have few options to select according with the following three inputs:

- Antennas Beamwidth enlargement percentage [%];
- Coverage Distance [Km] beside a cell is considered as 'Border Cell';
- Which 3G cells (All / Ony those detected into OMC 3G snapshot file) are considered for the 'Border Cells' calculation;

Change the values according with your needs and then push OK.

When the module completed the calculations you will get the following message:



Choose OK and you will get the results into Excel in the background as an workbook containing many sheets, each sheet corresponding to the 'Border Cells' analysis performed for that specific frequency layer (see as example the screenshot below):

	1	2	3	4	5	6	7	8	9	10	11	12
	Cell Name	Cluster	Local CID	Easting	Northing	Sector_ID (Azimuth)	Cell BW	Minimum distance to all the other cells InsideBW [Km]	Az Dmin	Cell Name Dmin	Cluster Dmin	Local CID Dmin
17	610064_U0_F0	Test	49895	21.16	45.40	1 (60)	71	1000.00				
22	610264_U1_F0	Test	47907	21.06	45.32	2 (120)	71	13.14	150	710007_U2_F0	Test	5592
26	610681_U0_F0	Test	538	20.92	45.60	1 (0)	71	30.71	16	610087_U2_F0	Test	420
27	610087_U2_F0	Test	420	21.05	45.87	3 (270)	71	49.39	253	610282_U2_F0	Test	18855
28	610087_U1_F0	Test	419	21.05	45.87	2 (150)	71	35.49	177	610055_U2_F0	Test	51703

Each frequency layer has a dedicated output sheet [F1/F2/F3/etc] where all the 3G cells belonging to that frequency layer are recorded and the output results are filtered (colored in pink color) with the 3G cells detected as 'Border Cells' based on the initially input data provided [BW percent enlargement %, Max coverage distance].

The 'Border Cells' detected in this way may be used to be assigned with a special 'class' for further optimisation purpose in order to accommodate/optimise better the main KPIs like CSSR & CDR.

Each sheet presents @ end of the row data the Frequency layer summary like below:

Microsoft Excel - Book1

File Edit View Insert Format Tools Data Window Help Adobe PDF Agileto

Type a question for help

R2881C1 Agileto => www.agileto.com © 2010 All rights reserved (support@agileto.com) [M1.3[V2.71] => Network boundary -> 'Border Cells' detection

	1	2	3	4	5	6	7	8	9	10	11	12
	Cell Name	Cluster	Local CID	Easting	Northing	Sector_ID (Azimuth)	Cell BW	Minimum distance to all the other cells InsideBW [Km]	Az Dmin	Cell Name Dmin	Cluster Dmin	Local CID Dmin
1												
2841	850072_U1_F0		52857	-1.40	46.34 2 (300)		71	12.62	317	850044_U2_F0		53065
2879	442295_U0_F0		21438	-1.64	47.22 1 (0)		71	28.96	337	440116_U2_F0		8446
2880												
2881	Agileto => www.agileto.com © 2010 All rights reserved (support@agileto.com) [M1.3[V2.71] => Network boundary -> 'Border Cells' detection											
2882	User Login: Admin Run Time: 20Jun2010 13:16:26-13:16:46 [20sec]											
2883	Frequency Layer = 1 [2112.8MHz], BW Extended = 10%, MaxDist Border Cells = 7Km											
2884	Note: All 3G FDDCells declared into 3G&2G_Config.xls file (not necessary detected into OMC snapshot) have been used for the calculation											

Filter Mode

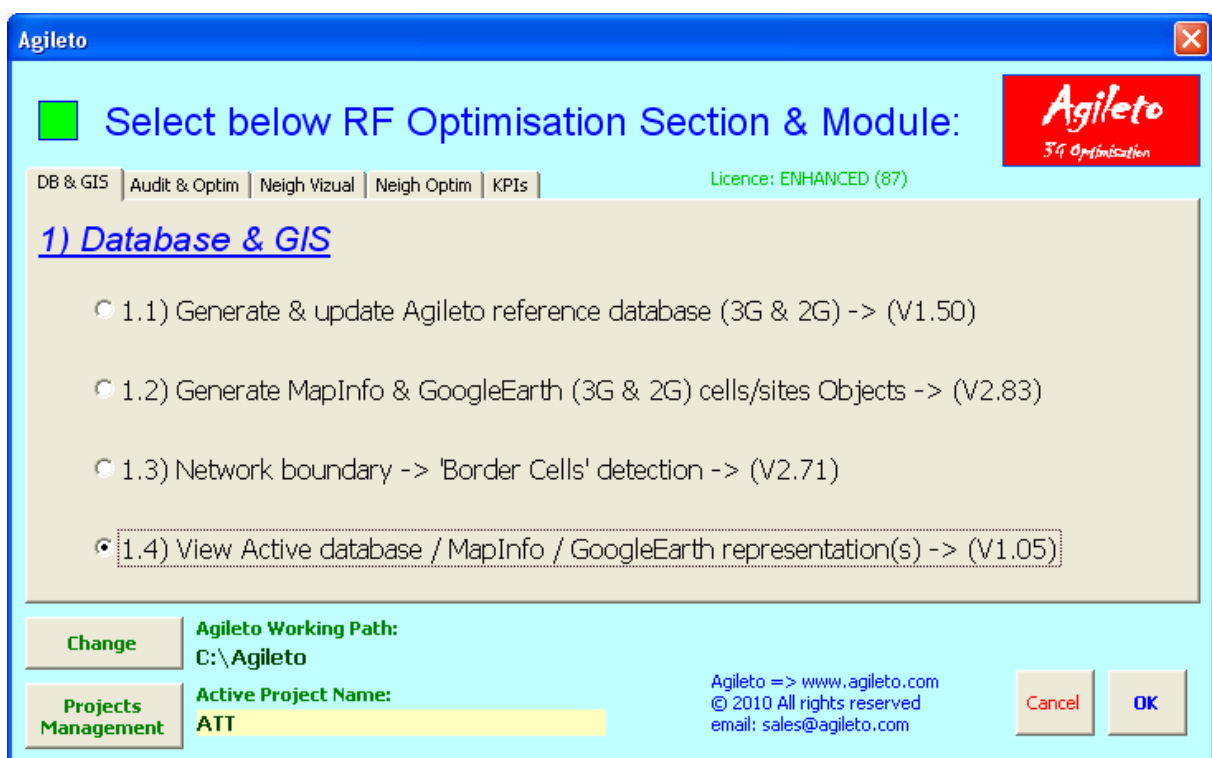
NUM

1.4) View Active database / MapInfo / GoogleEarth representation(s)

This module is used to visualize the 'active' Agileto project reference database or different MapInfo / GoogleEarth representations which have been created in advance by different other modules.



Choose Start option and after this, module M1.4:



Choose OK and you will get the next window:



Select the desired option and then press OK button to visualize it accordingly.

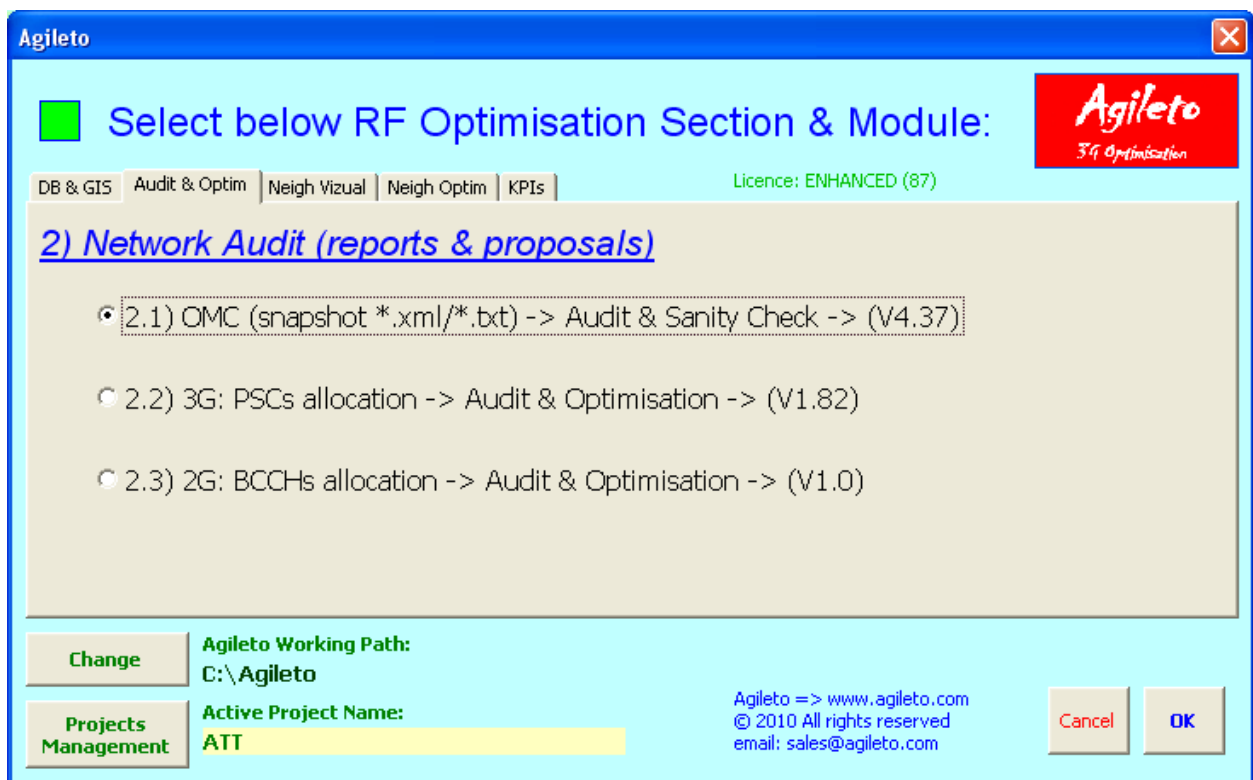
Network Audit (reports & proposals)

2.1) OMC (snapshot *.xml/*.txt): Audit and Sanity Check

This module is used to make an audit on the 3G Network regarding its main 3G RF parameters plus the 2G associated declarations together with the 3G-3G and 3G-2G neighbors relationships. In case that issues are detected during the audit phase they will be emphasized accordingly and Agileto will generate automatically the associated corrective Work Orders [WO] to be loaded directly into OMC 3G.

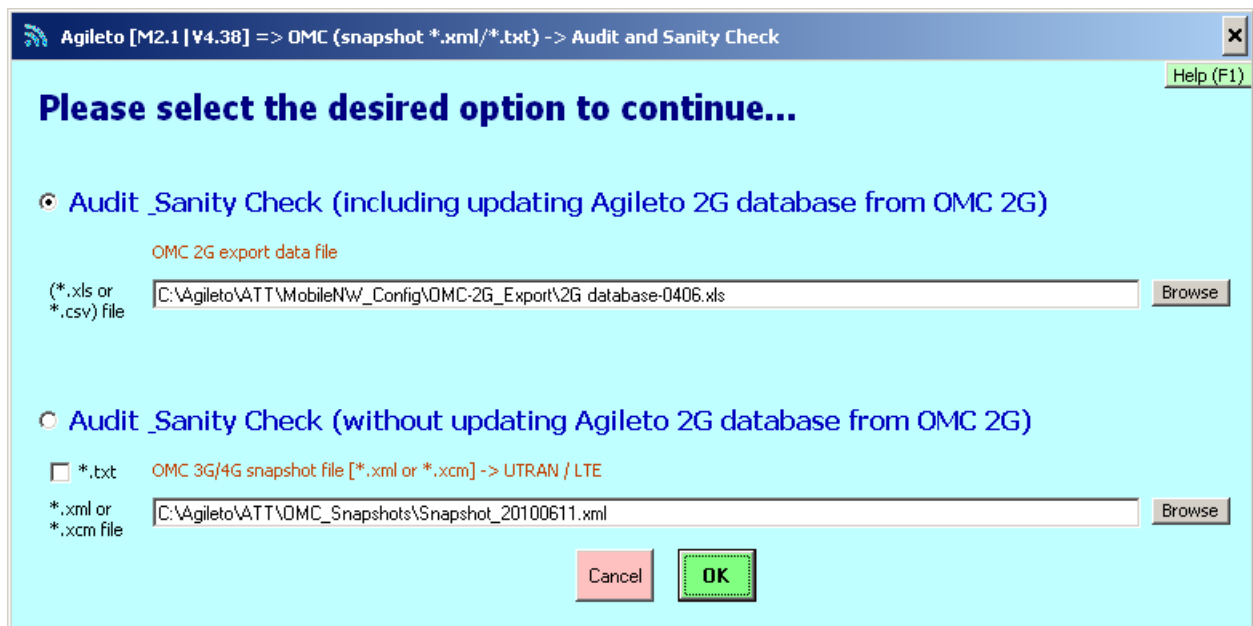


Choose Start option and after this, module nr. 2.1)



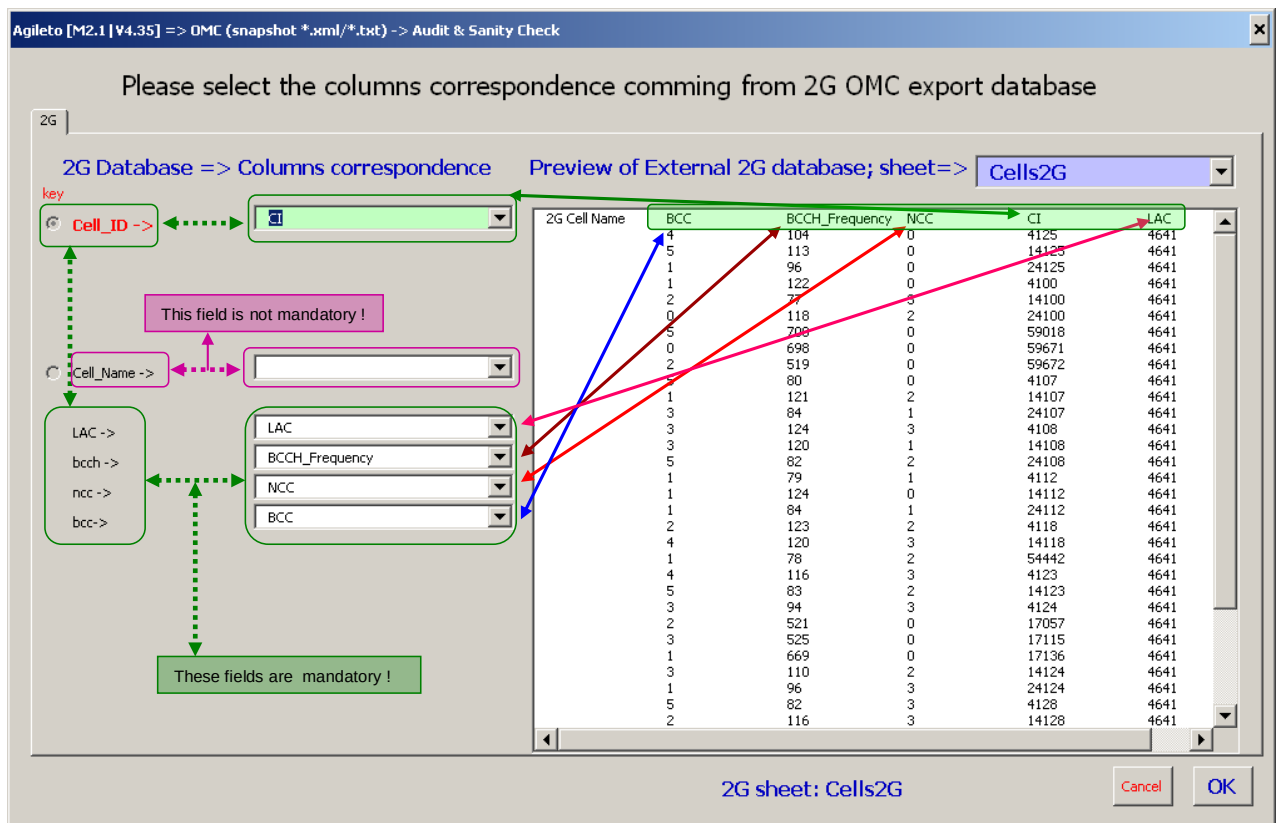
Choose OK and you will see the next window (as per presented further).

Here you can choose one of the two options available to continue. Either the first option (top into next picture) **'...including updating Agileto 2G database from OMC 2G'** or **without update** (the second option). In case the 2G network changes at least one of its main 5 parameters at 2G cell level [these parameters are: CID/LAC/BCCH/BCC/NCC] then it is mandatory to use the first option otherwise it may be used the second option (which is faster and requires less inputs).

Case 1 => Including updating Agileto 2G database from OMC 2G:

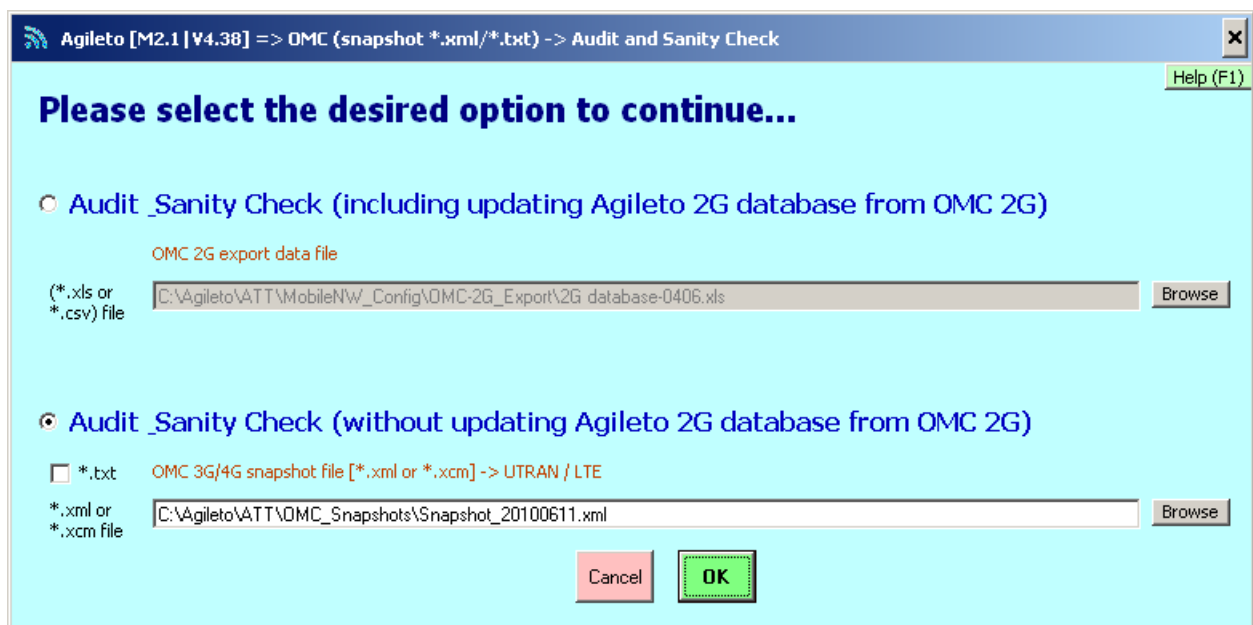
The difference between the **Case 1** and the **Case 2** presented below consists for the Case 1 in providing additionally an *.xls file representing the OMC 2G (network) export file containing at least the following five (5) set of parameters 2G [these 2G Cells parameters are: **CID/LAC/BCCH/BCC/NCC**] - this is the **File #7** (see chapter “[Before you start](#)”). The file format for this type of file may be consulted into the Annex named “[OMC 2G network file format](#)”.

The following window will occur asking you to provide the right columns association between the standard Agileto 2G headers and the name of the columns how they are exported from OMC 2G network, as following:



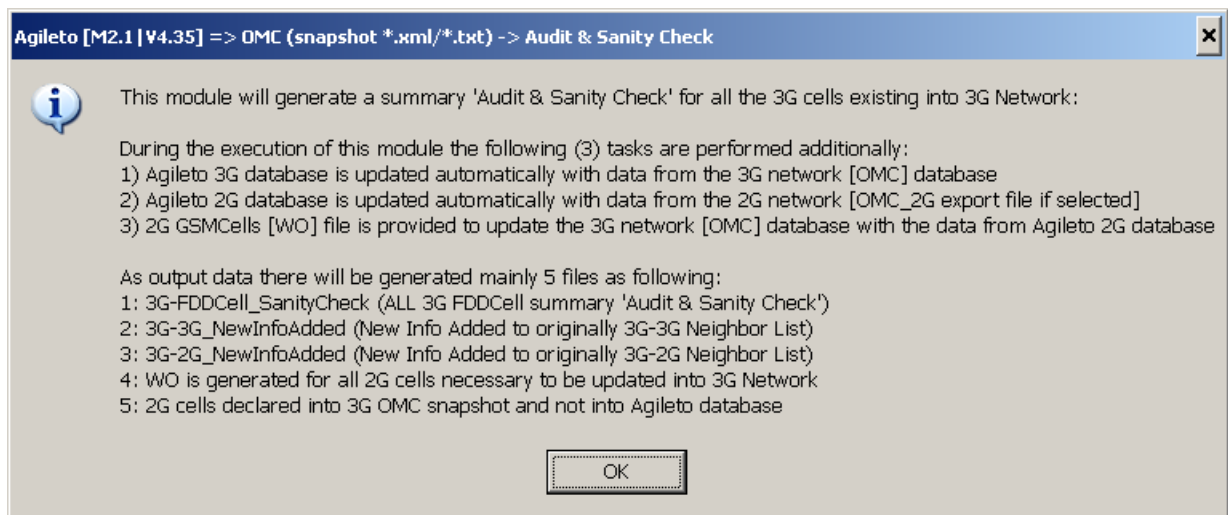
Excepting this difference, the rest of the next steps are the same like for the Case 2.

Case 2 => Without updating Agileto 2G database from OMC 2G:

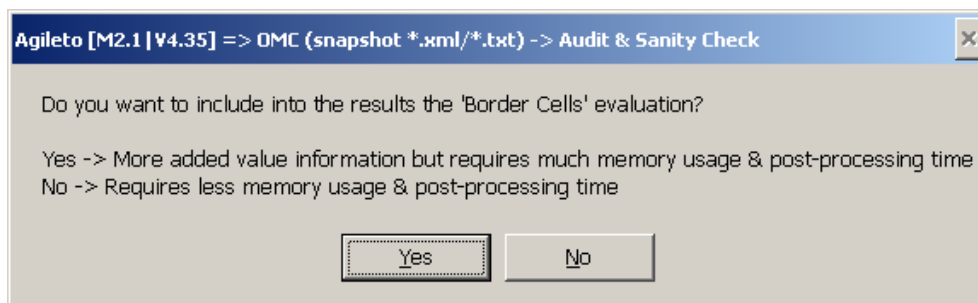


OMC (3G) snapshot file should be the **File #1** (see “[Before you start](#)”). In case the OMC (3G) snapshot configuration file is provided in *.txt format you should tick the corresponding square just left to the area where it is displayed into the above window.

Choose OK and you will get:

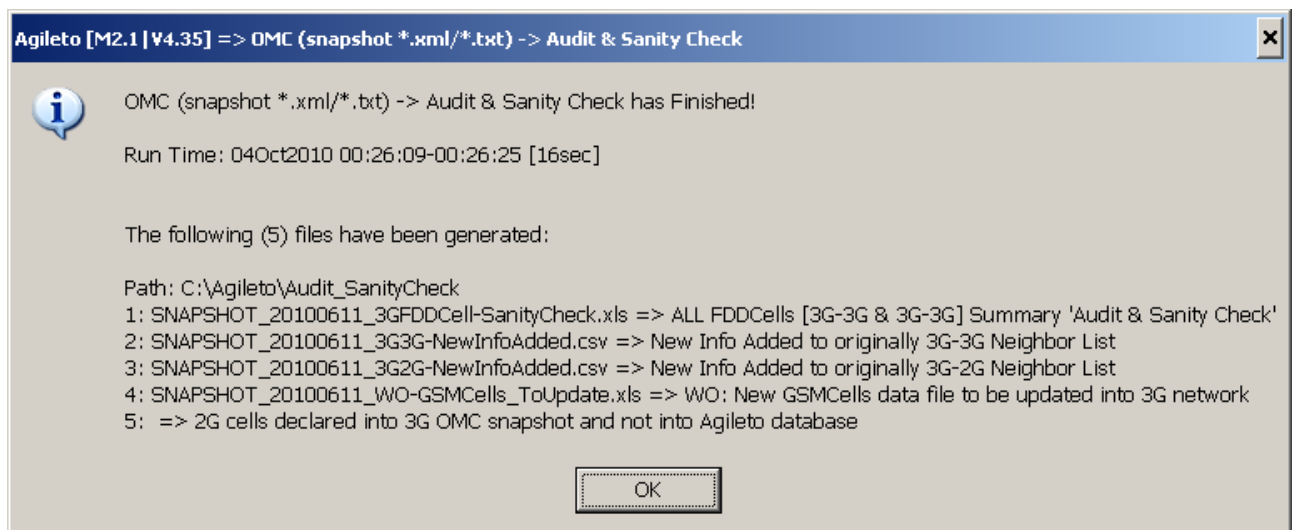


Choose OK.



Choose Yes or No according with your needs.

When the module completed the calculations the message below will be displayed:



Choose OK and the Audit (SanityCheck) and the WO(s) generated Excel files will be displayed into the background like it may be seen into the next screenshots.

As per it is presented into the above message, the output results of this module [M2.1] may be up to five (5) files, as following:

- **3GFDDCell-SanityCheck.xls** -> This is a summary report file on FDDCell basis presenting the main 3G Cell RF associated parameters as well as the summary 3G Cell Neighbors audit (3G->3G & 3G->2G);
- **3G3G-NewInfoAdded.csv** -> This is the file presenting all 3G->3G Neighbors declarations detected into OMC snapshot configuration file where there have been added some other supplementary information (neighbors distance, priority, relation ID, etc);
- **3G2G-NewInfoAdded.csv** -> This is the file presenting all 3G->2G Neighbors declarations detected into OMC snapshot configuration file where there have been added some other supplementary information (neighbors distance, priority, relation ID, etc);
- **WO-GSMCells_ToUpdate.xls** -> This is the file representing the necessary/corrective Work Order [WO] to be applied into the 3G network in order to correct the false 2G parameters information (not yet updated) detected into 3G network (3G OMC snapshot file).
- **GSMCells_only3GOMC-NoExcel.xls** -> This file contains all the 2G cells declarations into the 3G network which have not been detected into Agileto 2G reference database. On this case, these 2G cells declarations need either to be deleted from the 3G network (no more existing into the real 2G network) either they need to be updated into Agileto 2G reference database.
- **GSMCells_only2GOMC-NoExcel.xls** -> This file contains all the 2G cells exported from OMC 2G network which have not been detected into Agileto 2G reference database. These 2G cells are recommended to be updated into Agileto 2G reference database by using the module [M1.1](#).

3GFDDCell-SanityCheck Report (1):

The main 3G cells RF parameters are presented on the left side of the report as into the screenshot presented below:

SNAPSHOT_20100611_3GFDDCell-SanityCheck.xls																				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Cell_Code	RNC	Cluster	NodeB Name	Bts Type	TMA Type	FddCell Name	LCell_ID	Frequen cy	paRatio	extAtt MainDL	MaxTx Power	pCPICH Power	SectorID [Azimuth] (BtsAnt)	PSC	Same PSC MinDist (LCell_ID)	Same PSC MinDist [Km]	Same PSC MinDist (InsideB W)	DistMin to all other Cells InsideBW [Km]	CellSize	DistMax Neigh IntraFreq [Km]
668	W238_31	RNC_235	Test	NDB_130	STSR2-6-3	tmaUmtsOnly	610530_U2_F0	238	10564	60	1.3	40.2	30.2 3 [350] (2)	196	9944	127.5	False/Fals	0.8	from10to30	4.5
669	U18046_32	RNC_235	Test	NDB_130	STSR2-6-3	tmaUmtsOnly	610530_U2_F1	18046	10589	40	1.3	38.4	30.2 3 [350] (2)	196	0	1000	False/Fals	0.8	from10to30	2.8
670	N20809_17	RNC_235	Test	NDB_150	None_RRH1	tmaMix	610825_U0_F0	20809	3075	100	0.1	42.9	32.9 1 [210] (0)	202	0	1000	False/Fals	19	from10to30	24.3
671																				
672	Agileto => www.agileto.com © 2010 All rights reserved (support@agileto.com) [M2.1 V4.35] => OMC (snapshot *.xml/*.txt) -> Audit & Sanity Check																			
673	User Login: Admin Run Time: 04Oct2010 00:26:09-00:26:25 [16sec]																			
674	OMC Snapshot file: C:\Agileto\OMC-3G_Snapshots\SNAPSHOT_20100611.xcm																			
675	Agileto database file: C:\Agileto\3G&2G_Config\3G&2G_Config.xls																			
676	2G network OMC export file: Last updated today: 31May2010 15:13, 2G cells updated from 2G 'External' Excel file: C:\Agileto\3G&2G_Config\3G&2G_External_DB\3G2G database-0406.xls																			
677	Output Audit & Sanity Check path: C:\Agileto\Audit_SanityCheck																			
678	Output 3G FDDCell Summary 'Audit & Sanity Check' file: SNAPSHOT_20100611_3GFDDCell-SanityCheck.xls																			
679	Output 3G-3G NewInfoAdded file: SNAPSHOT_20100611_3G3G-NewInfoAdded.csv																			
680	Output 3G-2G NewInfoAdded file: SNAPSHOT_20100611_3G2G-NewInfoAdded.csv																			
681																				
682	The OMC snapshot file should be updated with (2) 2G [GSMCell] data contained into the file: C:\Agileto\Audit_SanityCheck\SNAPSHOT_20100611_WO-GSMCells_ToUpdate.xls																			

3GFDDCell-SanityCheck Report (2):

The summary 3G Cell neighbors IntraFrequency/InterFrequency/InterRAT is presented on the right side of the report, as following:

SNAPSHOT_20100611_3GFDDCell-SanityCheck.xls																					
	1	7	8	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
	Cell_Code	FddCell Name	LCell_ID	DistMax Neigh IntraFreq [Km]	NrNeigh IntraFreq	sib11and Dch IntraFreq	Reciproca lly Neigh IntraFreq	Non Reciproca lly Missing Incoming IntraFre	Non Reciproca lly Missing Outgoing IntraFre	DistMax Neigh InterFreq [Km]	NrNeigh InterFreq	sib11and Dch InterFreq	Reciproca lly Neigh InterFreq	Non Reciproca lly Missing Incoming InterFre	Non Reciproca lly Missing Outgoing InterFre	DistMax Neigh 2G [Km]	NrNeigh 2G	sib11an dDch 2G	DistMax Neigh Total [Km]	NrNeigh Total	sib11and Dch Total
1																					
668	W238_31	610530_U2_F0	238	4.5	16	16	7	9	0	0	3	3	1	2	2	4.5	15	15	4.5	34	34
669	U18046_32	610530_U2_F1	18046	2.8	6	6	2	4	0	2	9	9	1	8	0	0	0	0	2.8	15	15
670	N20809_17	610825_U0_F0	20809	24.3	5	5	4	1	0	28.1	8	8	6	2	0	3.4	5	5	28.1	18	18
Sheet1 / Sheet2 / Sheet3 /																					

3G3G-NewInfoAdded (1)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Cell_Source	Cell_Target	RNC_Source	RNC_Target	sib11OrDchUsage	Cluster S	Cell Name S	Local_CID S	RNC Name S	Frequency S	Cluster T	Cell Name T	Local_CID T	RNC Name T	Frequency T
17	W49086_21	W50321_31	314	314	sib11AndDch	CL_1	760083_U1_F0	49086	RNC_237	10589	CL_1	760880_U2_F0	50321	RNC_237	10589
18	W49086_21	W1324_11	314	314	sib11AndDch	CL_1	760083_U1_F0	49086	RNC_237	10589	CL_1	760152_U0_F0	1324	RNC_237	10589
19	W49086_21	W50205_11	314	314	sib11AndDch	CL_1	760083_U1_F0	49086	RNC_237	10589	CL_1	760130_U0_F0	50205	RNC_237	10589
20	W49086_21	W6070_11	314	314	sib11AndDch	CL_1	760083_U1_F0	49086	RNC_237	10589	CL_1	761264_U0_F0	6070	RNC_237	10589
21	W49086_21	W50064_21	314	314	sib11AndDch	CL_1	760083_U1_F0	49086	RNC_237	10589	CL_1	760880_U1_F0	50064	RNC_237	10589
22	W49086_21	W49089_11	314	314	sib11AndDch	CL_1	760083_U1_F0	49086	RNC_237	10589	CL_1	760153_U0_F0	49089	RNC_237	10589
23	W49086_21	W50052_11	314	314	sib11AndDch	CL_1	760083_U1_F0	49086	RNC_237	10589	CL_1	760741_U0_F0	50052	RNC_237	10589
24	W49086_21	W49905_31	314	314	sib11AndDch	CL_1	760083_U1_F0	49086	RNC_237	10589	CL_1	760109_U2_F0	49905	RNC_237	10589
25	W49916_11	W49087_31	314	314	sib11AndDch	CL_1	760083_U0_F0	49916	RNC_237	10589	CL_1	760083_U2_F0	49087	RNC_237	10589

3G3G-NewInfoAdded (2)

	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1	Cell Name S	Local_CID S	RNC Name S	Frequency S	Cluster T	Cell Name T	Local_CID T	RNC Name T	Frequency T	Reverse Position	Neigh Dist [Km]	CellSize S	CellSize T	targetCellColor/ umtsNeighborRelation	Neigh Priority
17	760083_U1_F0	49086	RNC_237	10589	CL_1	760880_U2_F0	50321	RNC_237	10589	6177	1.7	from10to30	from5to10	From_F0_to_F0	12
18	760083_U1_F0	49086	RNC_237	10589	CL_1	760152_U0_F0	1324	RNC_237	10589	3121	1.4	from10to30	from5to10	From_F0_to_F0	5
19	760083_U1_F0	49086	RNC_237	10589	CL_1	760130_U0_F0	50205	RNC_237	10589	8552	1.5	from10to30	from5to10	From_F0_to_F0	3
20	760083_U1_F0	49086	RNC_237	10589	CL_1	761264_U0_F0	6070	RNC_237	10589	2784	1.6	from10to30	from5to10	From_F0_to_F0	17
21	760083_U1_F0	49086	RNC_237	10589	CL_1	760880_U1_F0	50064	RNC_237	10589	6200	1.7	from10to30	from5to10	From_F0_to_F0	11
22	760083_U1_F0	49086	RNC_237	10589	CL_1	760153_U0_F0	49089	RNC_237	10589	8891	1.9	from10to30	from5to10	From_F0_to_F0	8
23	760083_U1_F0	49086	RNC_237	10589	CL_1	760741_U0_F0	50052	RNC_237	10589	930	4.8	from10to30	from5to10	From_F0_to_F0	10
24	760083_U1_F0	49086	RNC_237	10589	CL_1	760109_U2_F0	49905	RNC_237	10589	1725	2.6	from10to30	from5to10	From_F0_to_F0	2
25	760083_U0_F0	49916	RNC_237	10589	CL_1	760083_U2_F0	49087	RNC_237	10589	52	0	from10to30	from10to30	From_F0_to_F0	3

3G2G-NewInfoAdded:

Microsoft Excel - snapshot_20100607_OMC1_9h30_3G2G-NewInfoAdded.xls

File Edit View Insert Format Tools Data Window Help Adobe PDF Agileto

Type a question for help

100%

Security...

Arial 10

R1C1 Cell_Source

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Cell_Source	Cell_Targ et	RNC_Sou rce	Cluster S	Cell Name S	Local_CID S	RNC Name S	Frequenc y S	Cell Name T	Cell_ID T	2G LAC	sib11OrDchU sage	Neigh Dist [Km]	CellSize S	Neigh Priorit...
2	W49086_21	G37652_1	314	CL_1	760083_U1_F0	49086	RNC_237	10589	GSM900_760152_S0	37652	4876	sib11AndDch	1.4	from0to5	6
3	W49086_21	G37630_1	314	CL_1	760083_U1_F0	49086	RNC_237	10589	GSM900_760130_S0	37630	4876	sib11AndDch	1.5	from0to5	3
4	W49086_21	G47652_2	314	CL_1	760083_U1_F0	49086	RNC_237	10589	GSM900_760152_S1	47652	4876	sib11AndDch	1.4	from10to30	7
5	W49086_21	G47630_2	314	CL_1	760083_U1_F0	49086	RNC_237	10589	GSM900_760130_S1	47630	4876	sib11AndDch	1.5	from10to30	4
6	W49086_21	G57652_3	314	CL_1	760083_U1_F0	49086	RNC_237	10589	GSM900_760152_S2	57652	4876	sib11AndDch	1.4	from10to30	8
7	W49086_21	G1945_4	314	CL_1	760083_U1_F0	49086	RNC_237	10589	GSM900_760153_S3	1945	4876	sib11AndDch	1.9	from10to30	10
8	W49086_21	G7683_1	314	CL_1	760083_U1_F0	49086	RNC_237	10589	GSM900_760083_S0	7683	4877	sib11AndDch	0	from10to30	0
9	W49086_21	G15560_4	314	CL_1	760083_U1_F0	49086	RNC_237	10589	GSM900_760151_S3	15560	4876	sib11AndDch	2.5	from10to30	5
10	W49086_21	G17683_2	314	CL_1	760083_U1_F0	49086	RNC_237	10589	GSM900_760083_S1	17683	4877	sib11AndDch	0	from10to30	1

Ready NUM

WO-GSMCells_ToUpdate:

The corrective WO is automatically generated (if necessary) in order to update properly the 2G parameters into 3G network.

	1	2	3	4	5	6	7	8	9	10	11	12
1	RNC	GSMNeighbour	GSMCell	bcc	bcchFrequency	maxAllowedUITxPower	ncc	userSpecificInfo				
2	RNC_235	GSM900_234521_S0	24663.1474.232.01	1	94	33	0	GSM900_234521_S0				
3	RNC_235	GSM900_532634_S0	40922.3821.232.01	6	122	33	0	GSM900_532634_S0				
4												
5	Agileto => www.agileto.com © 2010 All rights reserved (support@agileto.com) [M2.1 V4.35] => OMC (snapshot *.xml/*.txt) -> Audit & Sanity Check, => (2G [GSMCell] Corrections)											
6	User Login: Admin Run Time: 04Oct2010 00:26:09-00:26:20 [11sec]											
7	OMC Snapshot file: C:\Agileto\OMC-3G_Snapshots\SNAPSHOT_20100611.xcm											
8	Agileto database file: C:\Agileto\3G&2G_Config\3G&2G_Config.xls											
9	2G network OMC export file: Last updated today: 31May2010 15:13, 2G cells updated from 2G 'External' Excel file: C:\Agileto\3G&2G_Config\3G&2G_External_DB\3G2G database-0406.xls											
10	2G Cells detected into 3G OMC snapshot file: 1031 (including duplicated 2G cells into many RNCs)											
11	2G Cells detected into 2G Excel config file: 6570											
12	2G Cells detected in common (Excel & OMC) files: 1031											
13	This file is stored @: C:\Agileto\Audit_SanityCheck\SNAPSHOT_20100611_WO-GSMCells_ToUpdate.xls											
14												
15	Total GSMCell(s) [2] should be updated into 3G Network!											

GSMCells_only3GOMC-NoExcel:

	1	2	3	4	5	6	7	8	9	10	11	12
1	RNC	GSMNeighbour	GSMCell	bcc	bcchFrequency	maxAllowedUITxPower	ncc	userSpecificInfo				
48	RNC_237	GSM900_100075_S2	15366.5100.203.10	1	114	33	3	GSM900_100075_S2				
49	RNC_237	GSM900_550080_S0	15352.5100.203.10	2	76	33	1	GSM900_550080_S0				
50												
51	Agileto => www.agileto.com © 2010 All rights reserved (support@agileto.com) [M2.1[V4.35] => OMC (snapshot *.xml/*.txt) -> Audit & Sanity Check, => (2G [GSMCell] only into *.xml)											
52	User Login: Admin Run Time: 07Jun2010 14:08:10-14:13:17 [5min 7sec]											
53	OMC Snapshot file: C:\Agileto\OMC-3G_Snapshots\snapshot_20100607_OMC1_9h30.xcm											
54	Agileto database file: C:\Agileto\3G&2G_Config\3G&2G_Config.xls											
55	2G network OMC export file: Last updated today: 07Jun2010 15:13, 2G cells updated from 2G 'External' Excel file: C:\Agileto\3G&2G_Config\3G&2G_External_DB\3G2G database-0406.xls											
56	2G Cells detected into 3G OMC snapshot file :7338 (including duplicated 2G cells into many RNCs)											
57	2G Cells detected into 2G Excel config file: 6570											
58	2G Cells detected in common (Excel & OMC) files: 6558											
59	This file is stored @: C:\Agileto\Audit_SanityCheck\snapshot_20100607_OMC1_9h30_GSMCells_only3GOMC-NoExcel.xls											
60												
61	Total GSMCell(s) [48] are detected only into 3G OMC snapshot file and not into Agileto 2G config Excel file; they should be deleted or updated into 2G config Excel file											

GSMCells_only2GOMC-NoExcel:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	GSM Name	GSM_ID	LAC	BCCH	BCC	NCC													
2411	GSM900_Prio_S1	25561	7679	118	2	3													
2412	GSM900_Center_S3	47637	7679	85	7	2													
2413	GSM900_Modern_S2	37638	7679	114	4	0													
2414																			
2415	Agileto => www.agileto.com © 2010 All rights reserved (support@agileto.com) [M2.1[V4.35] => OMC (snapshot *.xml/*.txt) -> Audit & Sanity Check, (2G [GSMCell] detected into OMC export file but not into 3G&2G																		
2416	User Login: Admin Run Time: 07Jun2010 14:18:18-14:19:00 [42sec]																		
2417	Agileto database file: C:\Agileto\3G&2G_Config\3G&2G_Config.xls																		
2418	2G network OMC export file: C:\Agileto\3G&2G_Config\3G&2G_External_DB\3G2G database-0406.xls																		
2419	2G Cells detected into 2G network OMC export file: 7807																		
2420	2G Cells detected into Agileto 2G Excel config file: 6570																		
2421	2G Cells detected in common (OMC & Excel) files: 5395																		
2422	This file is stored @: C:\Agileto\Audit_SanityCheck\3G2G database-0406_GSMCells_only2GOMC-NoExcel.xls																		
2423																			
2424	Total GSMCell(s) [2412] existing into 2G network OMC export but not into Agileto database file!																		

2.2) 3G: PSC allocation: Audit and Optimization

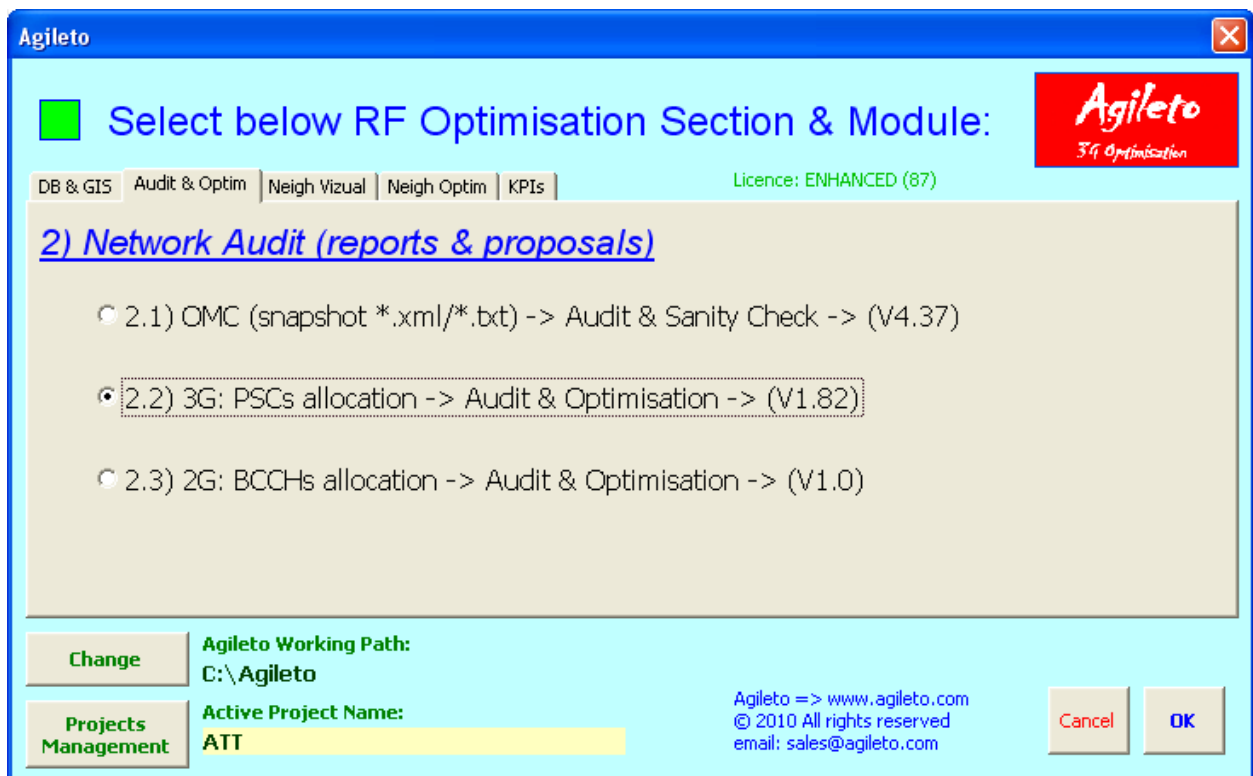
This module allows you to make an audit and optimise the planning/allocation of the PSCs at the entire 3G network on each of the frequency layers available (used) by the mobile operator; the audit of the PSCs allocation will identify all the critical situations, meaning all the cases representing 3G cells sharing the same PSC with a low inter-cells distance between them; the cells falling into this special category represent always a problem from the point of view of optimization as they will generate bad KPIs performance like low Accessibility, high Call Drop Rate, low Throughput, etc.

The quick solution to solve/cope with such un-optimized 3G network is to change the PSC allocation for the detected cells falling into this category. This is in fact what this module is doing at two levels:

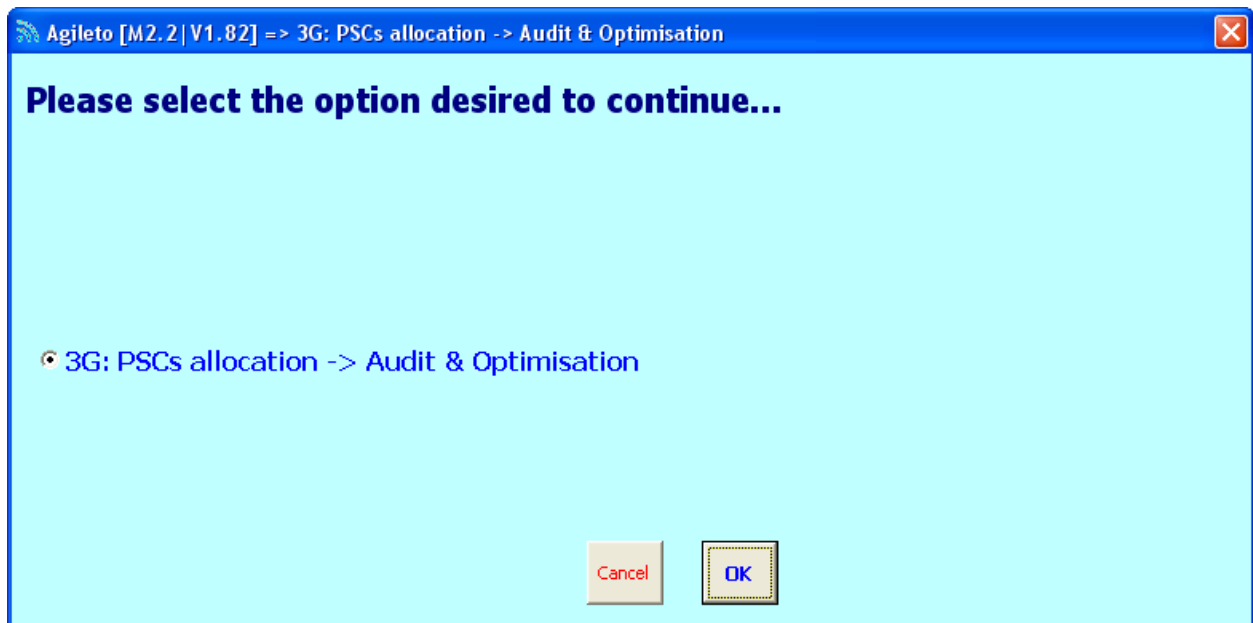
- A) **3G Cell/NodeB level** (best usage during local optimization/deployments);
- B) **3G Network level** (best usage during the optimization of large areas).



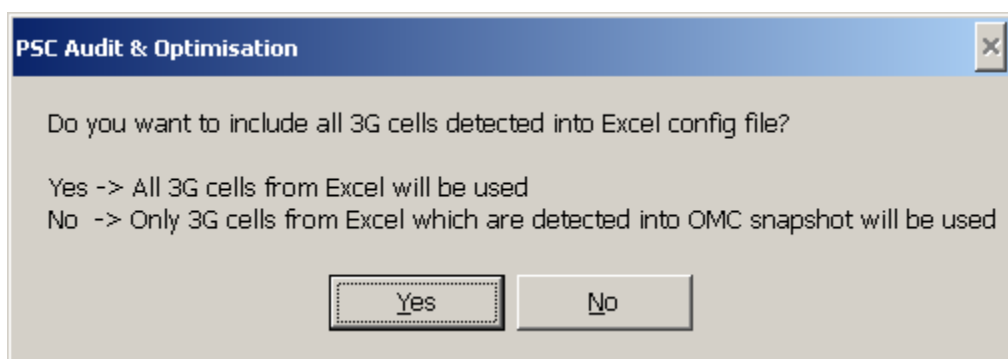
Choose Start option and after this, module M2.2:



Choose OK and you will get the following window:



Choose OK and you will have:



Choose Yes or No according with your needs and you will get the main form regarding this module, as following:

Agileto [M2.2 | V1.82] => 3G: PSCs allocation -> Audit + Optimisation

Help (F1)

General Input Data

Reference FDD LocalCell_ID:

Reference NodeB Name:

evaluate PSC Optim -> cells displayed

Re-Load original PSC data

Exit

evaluate PSC Optim -> all 3G cells

Export all displayed Results

REFERENCE (SOURCE) DATA:

Frequency: (Layer) Frequency: (UARFCN) Frequency: (MHz)

Input PSC: [automatically retrieval or manually input/change]

Minimum distance results for the target 3G FDDCell with the same PSC

	LocalCell_ID	Azimuth	FDD Cell Name	Min Distance [Km]	Optim PSC	Optim Dist.[Km]	LocalCell_ID	Azimuth	FDD Cell Name	Inside BeamWidth? S->T	T->S	
Sector 1	30941	30	U31960A	488	1000.0	488	1000.0	0	0		False	False
Sector 2	30942	120	U31960B	335	104.8	335	104.8	29629	170	U31892B	False	False
Sector 3	30943	210	U31960C	478	75.8	478	75.8	29648	250	U33411C	False	False
Sector 4												

The main form of this module (presented above) allows you to perform directly the audit and optimization of the PSCs allocation on all the 3G cells belonging to the same NodeB (and the same 3G frequency) like the 3G cell that was selected into the field **Reference FDD LocalCell_ID**.

The dedicated form presented above allows you to change the following two inputs:

- 1) **Reference FDD LocalCell_ID**
- 2) **Input PSC** (at 3G Source cell level)

The above two mentioned inputs are presented into the forms inside the blue squares.

During each change there is performed an instant audit presenting into the form the current status of the repetition of the same PSC in regards with the reference (source) cells; the fields from “**REFERENCE (SOURCE) DATA:**” and “**CALCULATED (TARGET) DATA:**” are updated automatically during each change.

To summarize this process, we may say that there are two main cases in order to perform the audit and optimization regarding PSCs allocation, as following:

- 1) **3G Cell/NodeB level** -> Push the green button “**evaluate PSC Optim -> cells displayed**” -> by performing this operation the following fields from the form are updated accordingly [marked within the green square]:
 - Optim PSC
 - Optim Dist. [Km]
- 2) **3G Network level** -> Push the blue button “**evaluate PSC Optim -> all 3G cells**” -> by performing this operation an Excel report file is generated into background with the new (optimized) allocation for the PSCs.

Both methods are considering for the PSCs allocation optimization purpose the maximization of the distance between any two 3G cells belonging to the same frequency layer and sharing the same PSC.

The first option (**Case 1 -> NodeB level**) is best suitable when there are detected one/few 3G Cells having an issue related to their PSCs allocation (high CDR, low Accessibility, low Throughput, etc) or for the new insertions/additions of the new sites in deployment between existing sites.

The second option (**Case 2 -> Network level**) is more suitable for the initially PSCs planning / allocation of the new 3G networks in deployment or for the re-planning in optimized mode of the PSCs allocations for the existing 3G network or in expansion.

Up to the currently status of the 3G network (initially planning [2], ongoing deployments [1/2], general area of optimization [2] or punctual optimization [1 -> troubleshooting / investigation]) it may be selected the Case 1 or the Case 2 as the best approach in line with the above recommendations.

The screenshots examples which will be presented below have been marked with Red/Green squares presenting the initial/optimized PSC allocations.

Case 1: PSCs Allocation Optimisation at 3G NodeB level

To export the optimized PSC allocation at 3G NodeB level data presented into the form just press the brown button and you will get:

Book22													
	1	2	3	4	5	6	7	8	9	10	11	12	13
		LCell_ID Source	Azimuth Source	FDDCell Name Source	PSC Source	Min Distance same PSC [Km]	PSC Optim	PSC Optim -> Min Dist [Km]	LCell_ID Target	Azimuth Target	FDDCell Name Target	InsideBW S->T	InsideBW T->S
1													
2	Sector 1	472	0	450130_U0_F0	208	99.7	213	473.3	18995	120	290083_U1_F0	FALSE	TRUE
3	Sector 2	476	120	450130_U1_F0	121	126.9	221	473.3	18997	240	290083_U2_F0	FALSE	FALSE
4	Sector 3	477	240	450130_U2_F0	344	168.9	278	472.1	10497	120	290147_U1_F0	FALSE	TRUE
5	Sector 4												
6													
7	Agileto => www.agileto.com © 2010 All rights reserved (support@agileto.com) [M2.2 V1.82] => 3G: PSCs allocation -> Audit & Optimisation												
8	User Login: Admin Run Time: 04Oct2010 02:02:00-02:02:00 [0sec]												
9	Frequency Layer=1, UARFCN=10564, Frequency MHz=2112.8												
10	Note: All 3G FDDCells declared into 3G&2G_Config.xls file (not necessary detected into OMC snapshot) have been used for the calculation												

Case 2: PSCs Allocation Optimisation at 3G Network level

To calculate PSCs Allocation Optimised at 3G Network level please press the blue button and you will get the following report:

Book24																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Cell_Code	RNC	Cluster	NodeB Name	FddCell Name	LCell_ID	SectorID [Azimuth]	PSC Ini	Same PSC MinDist Ini (LCell_ID)	Same PSC MinDist Ini [Km]	Same PSC MinDist Ini (InsideBW)	PSC Opt	Same PSC MinDist Opt (LCell_ID)	Same PSC MinDist Opt [Km]	Same PSC MinDist Opt (InsideBW)	Different PSC
1																
10	W50088_31	RNC_235	Test	NDB_230262	230262_U2_F0	50088	3 [260]	264	52756	10.8	False/False	102	420	53.6	False/False	Yes
11	W50345_21	RNC_235	Test	NDB_230262	230262_U1_F0	50345	2 [160]	272	53215	10.8	False/False	103	6814	102.4	False/False	Yes
12	W50087_11	RNC_235	Test	NDB_230262	230262_U0_F0	50087	1 [20]	280	49936	6.2	True/False	107	57090	105.4	False/False	Yes
13	W9048_21	RNC_235	Test	NDB_254355	254355_U1_F0	9048	2 [240]	98	5640	66.2	False/False	98	5640	66.2	False/False	No
F1 / F2 / F3 / F7 / F8 /																

PSCs optimization is performed on each 3G frequency layer detected and the results are store therefore on dedicated sheets like it is presented into the above screenshot example. The report contains the initially & optimized PSCs allocation for each 3G cell.

2.3) 2G: BCCHs allocation: Audit and optimization

This module is not yet available.

It is related to the 2G networks. It is intended to be a similar module for the 2G networks regarding BCCHs allocation like it is the previous module ([M2.2](#)) for the 3G networks regarding the PSCs allocation.

Currently Agileto tool is mainly oriented for the optimization on the 3G networks but as the performance of the 3G networks include the 3G->2G HHO success rate it worth to evaluate the status / planning of the 2G network as sometimes this may be the main issue in particular cases where the 3G->2G HHO is not performed properly.

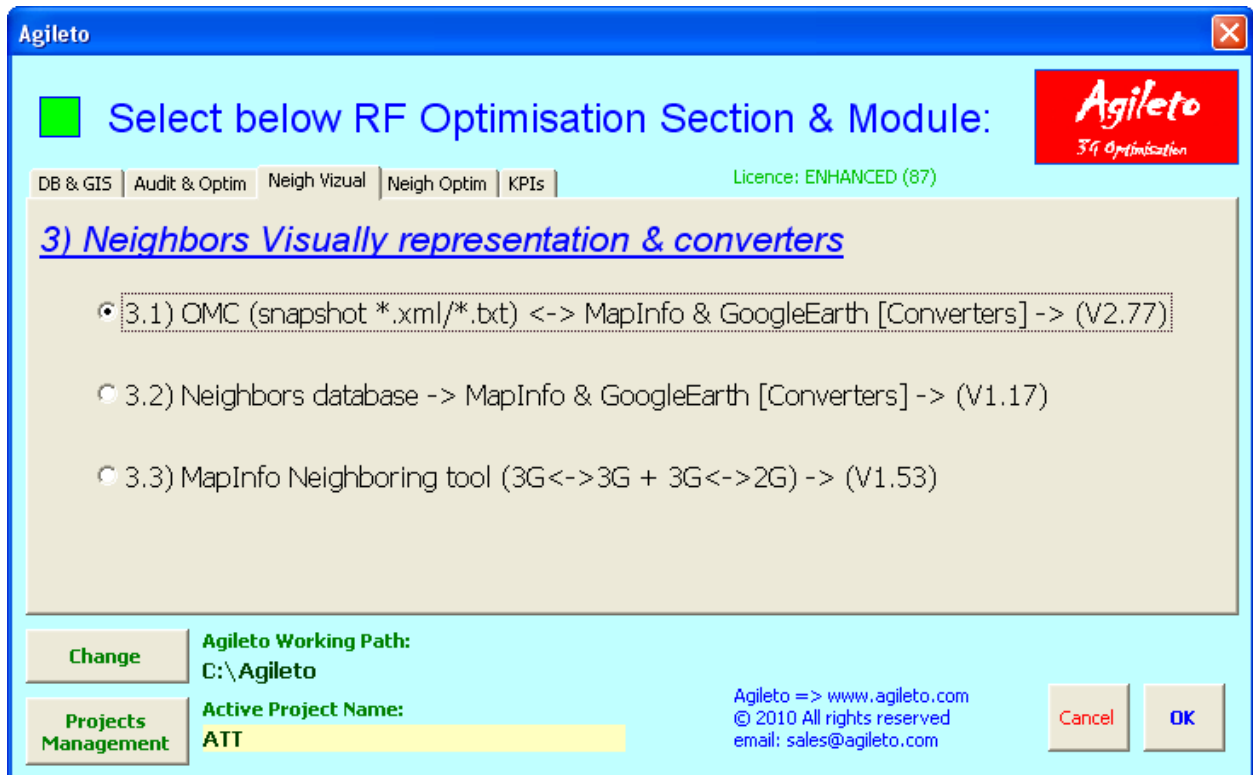
There is a plan to implement this module in the future but in case of special demands coming from different clients please do not hesitate to contact our technical support department at support@agileto.com and we will try to focus on this request to finish this module asap.

Neighbors Visually representation and converters

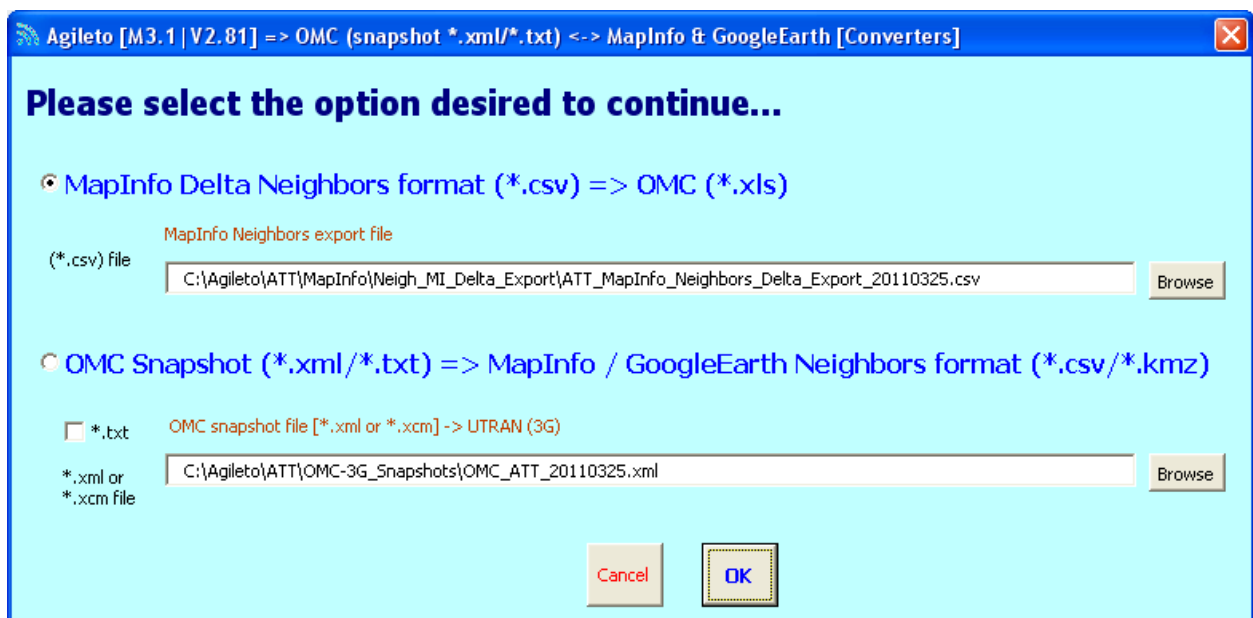
3.1) OMC (snapshot) <-> MapInfo & Google Earth converters



Choose Start option and after this, module M3.1:



Choose OK and you will get two main options as they are presented below:



Select the desired option then press OK button.

This module supports two main different options, as following:

Case 1 -> “MapInfo Delta Neighbors format (*.csv) => OMC (*.xls)”

This case is used to convert the neighbors changes performed visually in MapInfo (exported as *.csv format) into a suitable format (*.xls) capable to be imported directly into OMC.

Case 2 -> “OMC Snapshot (*.xml/*.txt) => MapInfo / Google Earth Neighbors format (*.csv/*.kmz)”

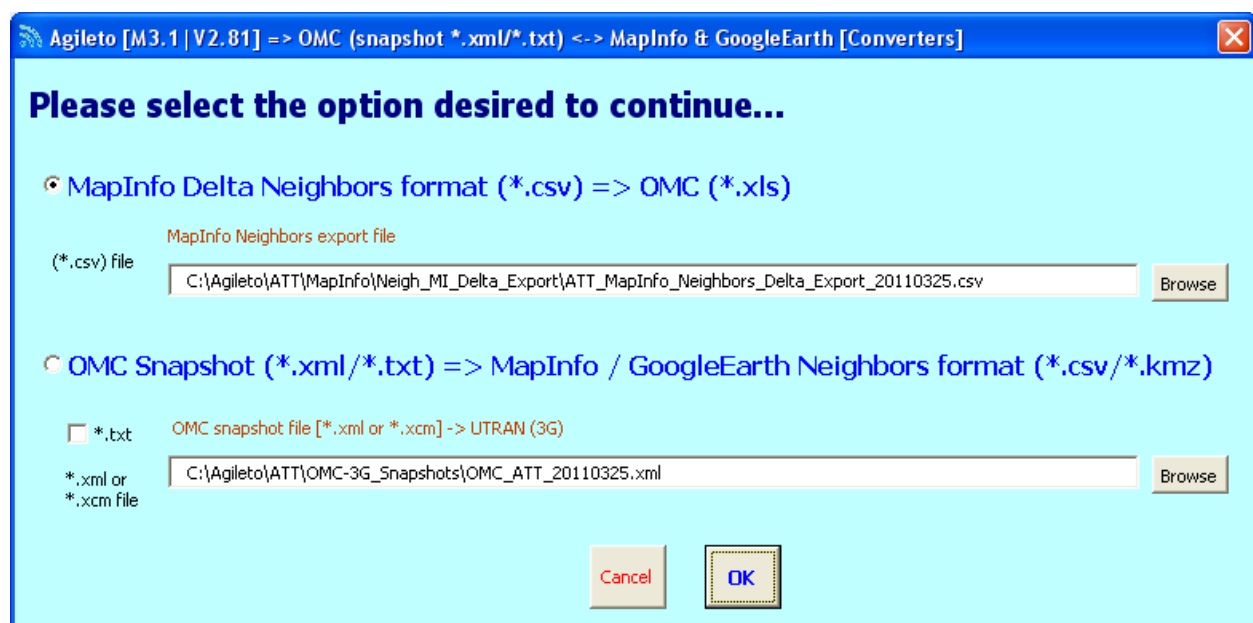
This case is used to convert the neighbors declarations (3G->3G + 3G->2G) existing into 3G OMC Snapshot file into a suitable format (*.csv) capable to be imported into MapInfo in order to represent visually these neighbors relationships.

By using the Case 2 the neighbors declarations 3G->3G + 3G->2G detected into 3G OMC snapshot file are mapped into *.kmz files too, in order to be able to see them into Google Earth environment as well.

Notice: The output (*.csv) files of the Case 2 represent the input files for the module [M3.3](#).

Case 1: MapInfo Delta Neighbors format (*.csv) => OMC (*.xls)

Please have a look on the picture below presenting the available inputs:

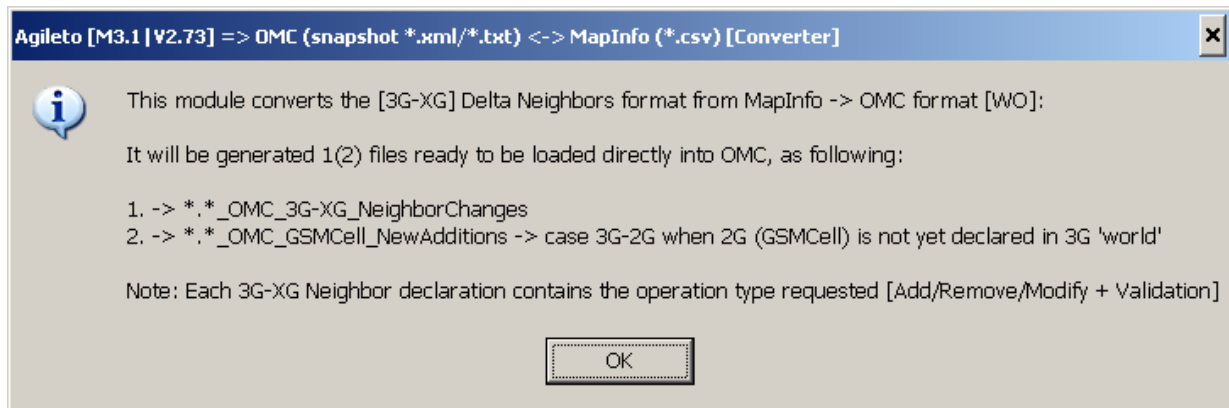


-> MapInfo Neighbors export file is a (*.csv) file exported from MapInfo Neighboring tool and it contains all the neighbors changes (Add/Delete) performed visually in MapInfo Neighboring tool (launched by the module [M3.3](#)). For more

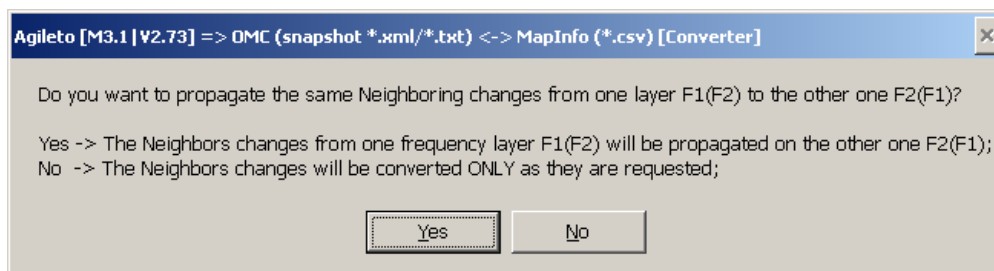
details regarding the structure/format of this type of file please see the Annex named [“MapInfo Neighbors export file”](#).

-> OMC (3G) snapshot file contains the 3G/2G network configuration details (including 3G-3G + 3G-2G neighbors declarations) and may be obtained in different formats: *.xml, *.xcm, *.txt - up to the 3G vendor equipment - **File #1** (see chapter [“Before you start”](#)).

After selecting the above inputs push OK into the above form and you will get:

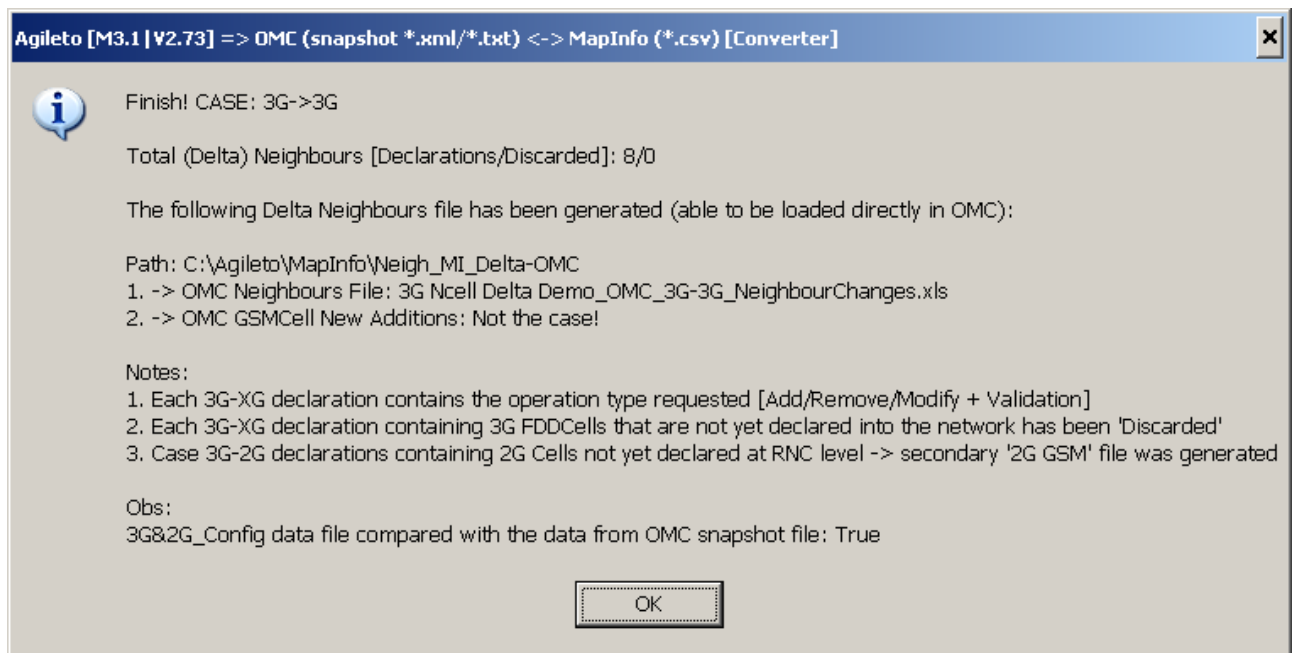


Press OK and you will get the next window.

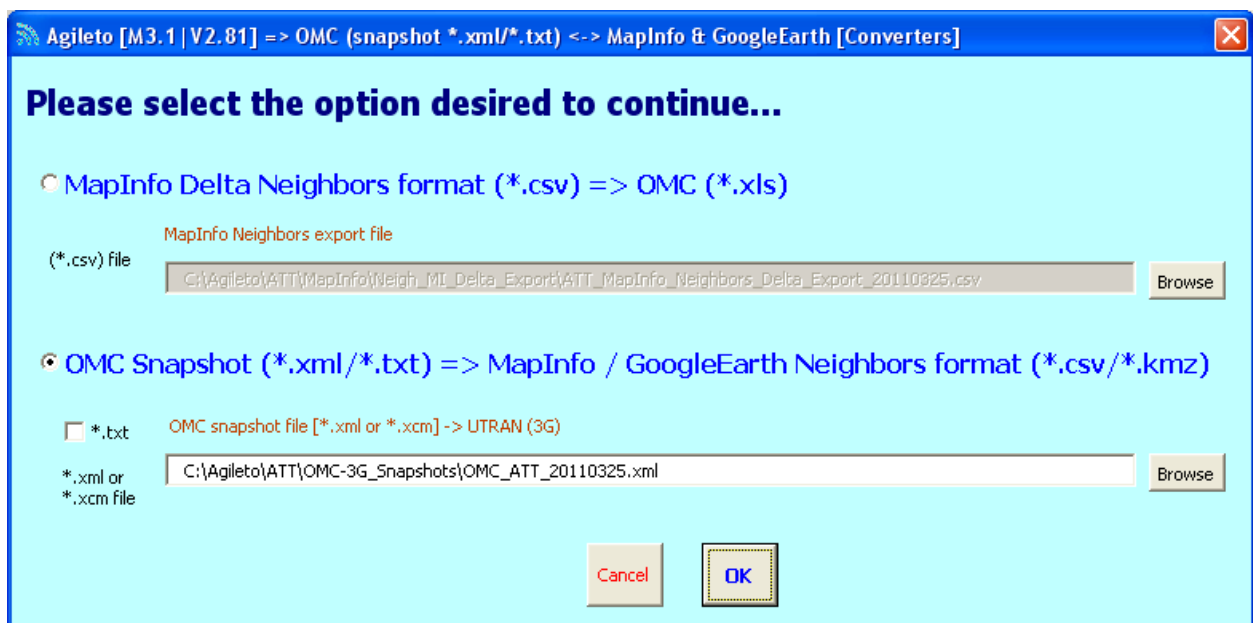


Choose the appropriate button (Yes/No) according with your needs.

When the conversion is completed you will see the next window presenting the summary of the neighbors conversion as well as the path location where the files have been saved.

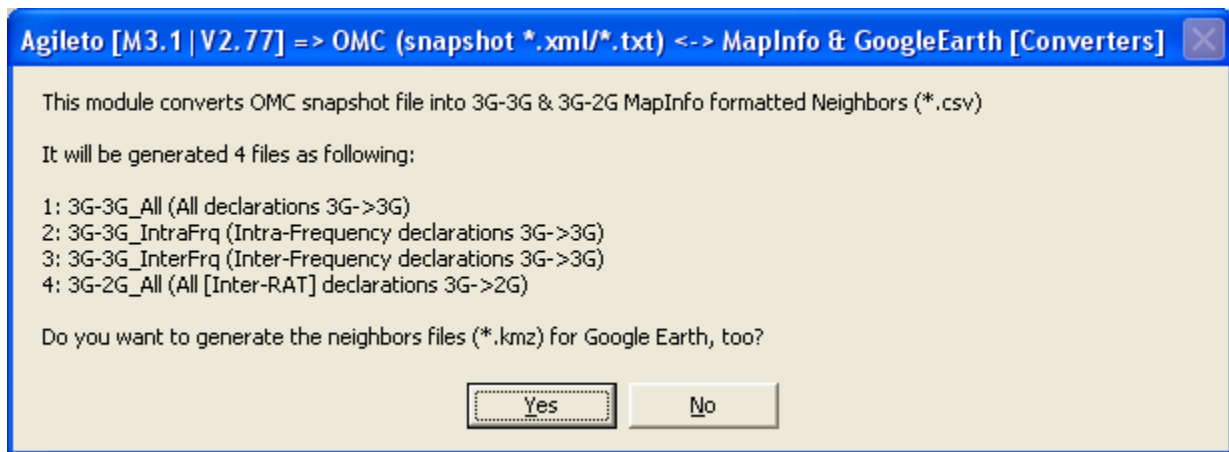


Case 2: OMC Snapshot (*.xml/*.txt) => MapInfo / Google Earth Neighbors format (*.csv/*.kmz)

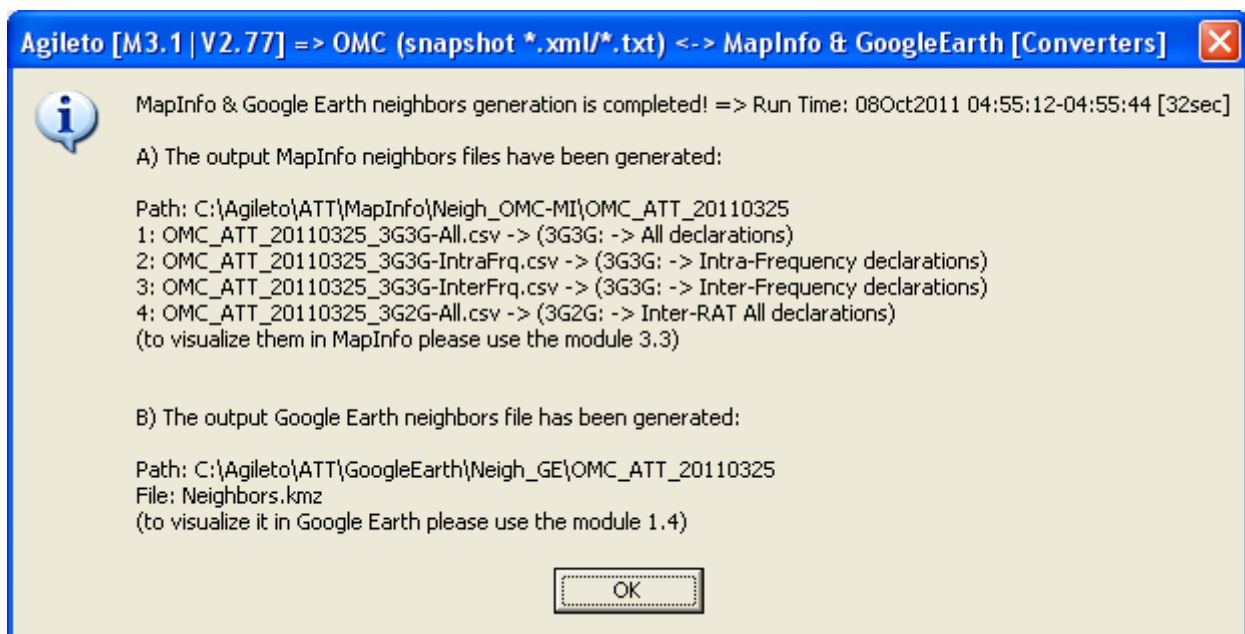


-> OMC (3G) snapshot file contains the 3G/2G network configuration details (including 3G-3G + 3G-2G neighbors declarations) and may be obtained in different formats: *.xml, *.xcm, *.txt - up to the 3G vendor equipment - **File #1** (see chapter [“Before you start”](#)).

After selecting the above inputs push OK and you will get the following message:



Choose **Yes** and when the module completed you will get the following message:



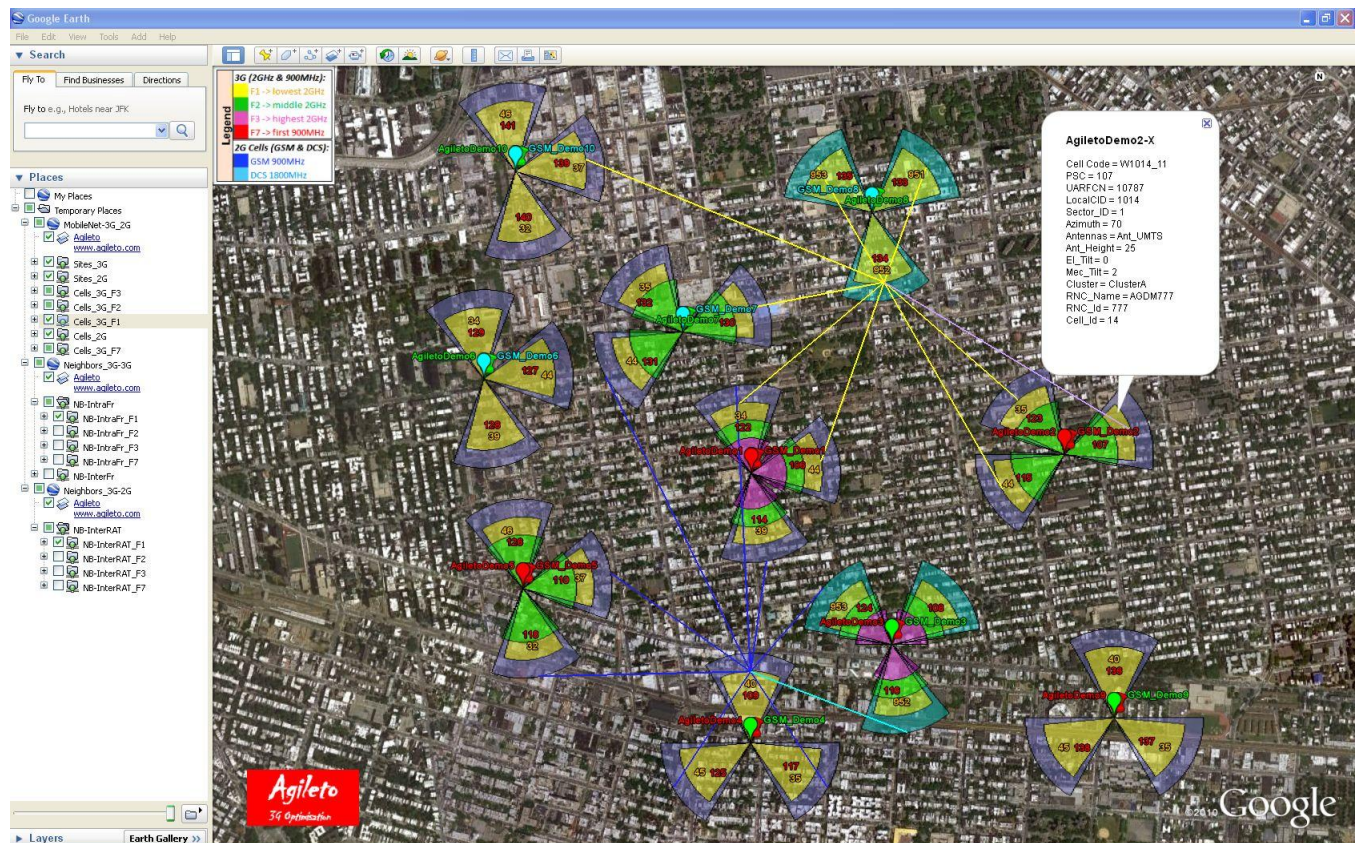
The necessary ***.csv** and ***.kmz** files containing the 3G->3G and 3G->2G neighbors have been saved as per the info indicated into the above picture.

For more details regarding the structure of the new generated neighbors ***.csv** files please see the Annex named “[MapInfo Neighbors import file](#)”.

The neighbors which are recorded into ***.csv** files represent the input files for the module [M3.3](#) (MapInfo Neighboring Tool).

The neighbors which are recorded into ***.kmz** file (**Neighbors.kmz**) may be visualized in Google Earth (by using the module [M1.4](#)) with the neighbors legend color which will be presented further.

Please see below an example (provided together with Agileto DEMO_PPRJECT) regarding the neighbors presentation which may be seen in Google Earth by loading the **Neighbors.kmz** file generated by this module.



We may remark into above picture (as example) the following type of the neighbors:

1. **yellow** lines which are presenting the **3G-3G Intra-Frequency (F1)** neighbors with **sib11andDch** flag allocation;
2. **purple** line which is presenting the **3G-3G Intra-Frequency (F1)** neighbors with **DchOnly** flag allocation;
3. **dark blue** lines which are presenting the **3G-2G Inter-RAT (GSM)** neighbors with **sib11andDch** flag allocation;
4. **light blue** line which is presenting the **3G-2G Inter-RAT (GSM)** neighbors with **DchOnly** flag allocation;

Below are presented the general legend details regarding the usage of the neighbors line colors:

- **3G-3G Intra-Frequency** neighbors are displayed with frequency layer colors:
 - **sib11andDch** -> are presented with **Cell Frequency Layer color**;
 - **DchOnly** -> are presented with **light Cell Frequency Layer color**;
- **3G-3G Inter-Frequency** neighbors are displayed with **black lines** up to the flag:
 - **sib11andDch** -> are presented with **dark black**;
 - **DchOnly** -> are presented with **light black**;
- **3G-2G Inter-RAT** neighbors are displayed with **blue lines** up to their flag:
 - **sib11andDch** -> are presented with **dark blue**;
 - **DchOnly** -> are presented with **light blue**;

All type of the neighbors (3G->3G and 3G->2G) are generated spatially (3D) in Google Earth and they look like they are presented into the next screenshot:



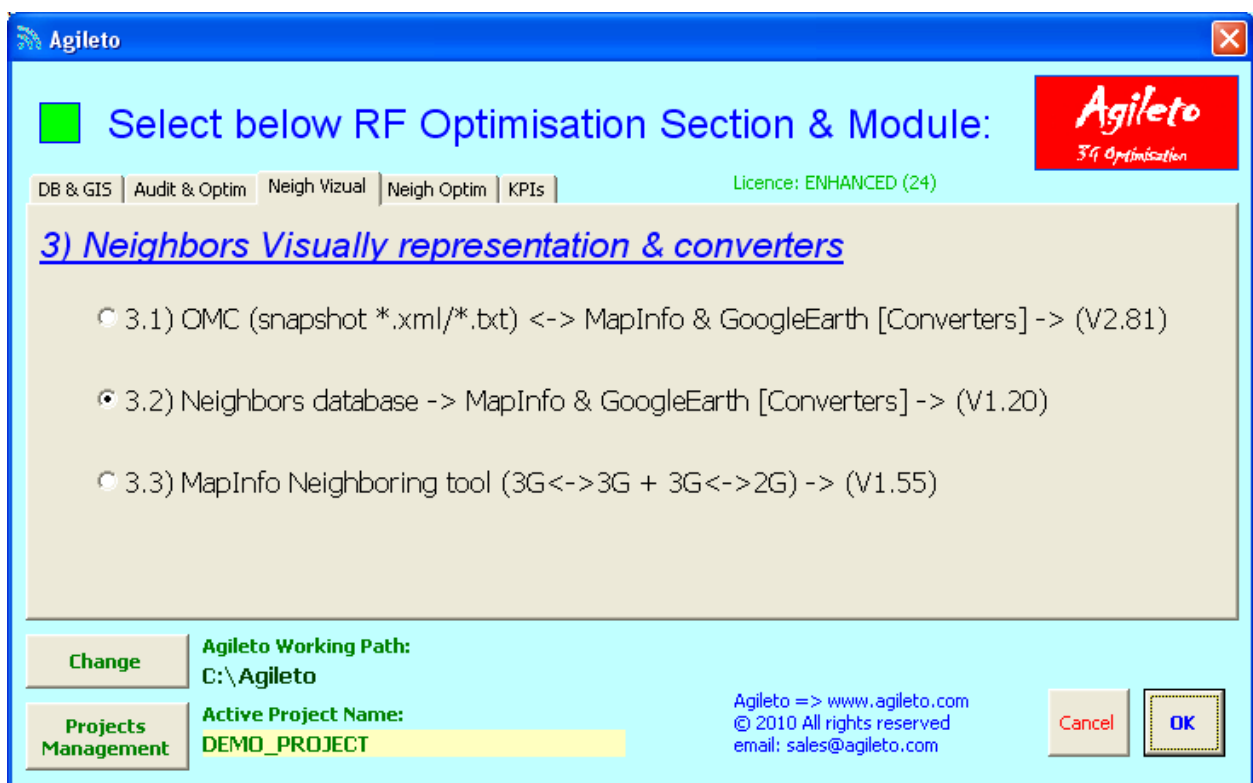
3.2) Neighbors database -> MapInfo & Google Earth converters

This module allows you to generate the 3G->3G and/or 3G->2G and/or 2G->2G neighbors declarations formats for MapInfo (see [M3.3](#)) and Google Earth when the OMC 3G configuration file of the 3G network is not available but the neighbors declarations (3G->3G and/or 3G->2G and/or 2G->2G) are available in *.csv formats.

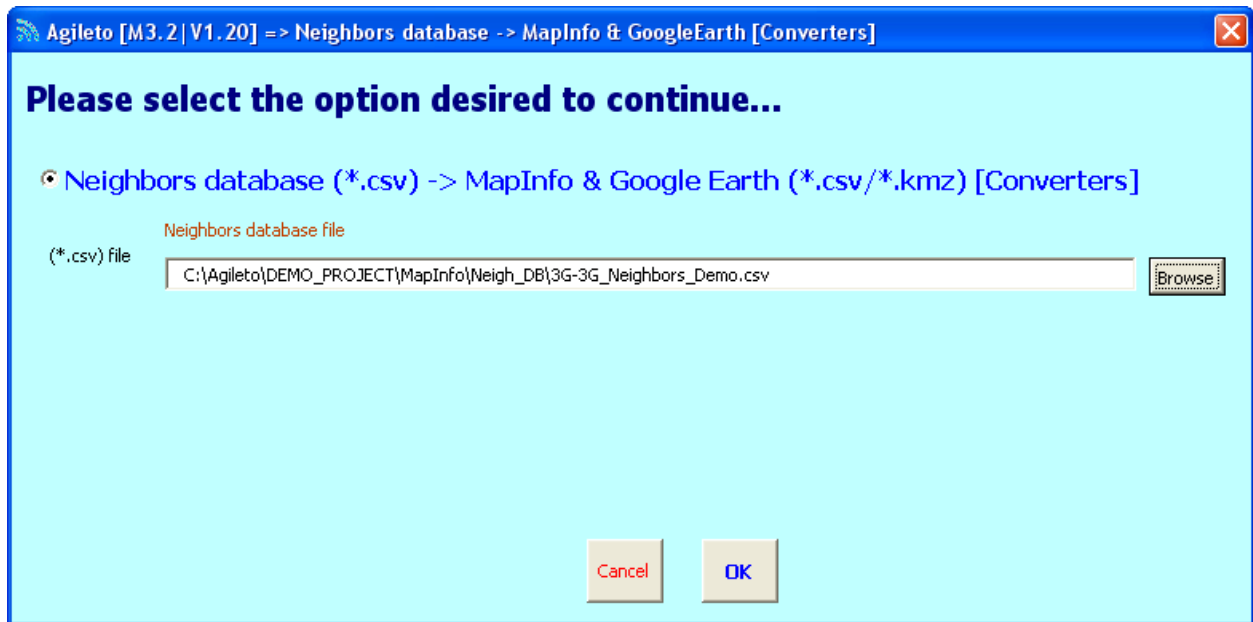
This module (M3.2) may represent a temporary solution to be used instead of the module [M3.1](#) when the neighbors declarations are available in different formats but the OMC 3G configuration file of the 3G network is not yet available.



Choose Start option and after this, module M3.2):



Choose OK and you will get the following window.



Neighbors database file is a *.csv file where the 3G->3G or 3G->2G or 2G->2G neighbors declarations are stored. They may be provided in different structure / internally data organization and for the right matching of the data columns it is necessary to provide the right columns associations like it will be presented into the next picture.

For more details regarding the structure/format of this type of the neighbors files please see the Annex named "[External Neighbors declarations file](#)".

After selecting the desired input file push OK into the above form and you will get the following window:

Agileto [M3.2[V1.22]] => Neighbors database -> MapInfo + GoogleEarth [Converters]

Please select the Neighbors declarations type and their columns associated correspondence

Neighbors Declarations

Neighbors declarations type:
(3G->3G or 3G->2G or 2G->2G)

☒ 3G->3G ☐ 3G->2G ☐ 2G->2G

3G Source Cells Format:

☐ cellId + RncId ☒ localCellId

Source Cells Columns correspondence:

localCellId Local_CID S

3G Target Cells Format:

☐ cellId + RncId ☒ localCellId

Target Cells Columns correspondence:

localCellId Local_CID T

Optional Inputs:

sib11orDchUsage / Priority correspondence:

sib11orDch sib11OrDchUsage

Priority Priority

Preview of the Neighbors declarations file:

Local_CID S	Local_CID T	sib11OrDchUsage	Priority	RNC_Source	RNC_Target	CID S	CID T	PSC S
52256	52257	sib11AndDch	1	613	613	52256	52257	336
52256	51784	sib11AndDch	2	613	613	52256	51784	336
52256	64001	sib11AndDch	3	613	802	52256	64001	336
52256	64002	sib11AndDch	4	613	802	52256	64002	336
52256	20704	sib11AndDch	5	613	620	52256	20704	336
52256	53396	sib11AndDch	6	613	613	52256	53396	336
52256	10538	sib11AndDch	7	613	613	52256	10538	336
52256	20283	sib11AndDch	8	613	613	52256	20283	336
52256	20282	sib11AndDch	9	613	613	52256	20282	336
52256	10536	sib11AndDch	10	613	613	52256	10536	336
52256	53526	sib11AndDch	11	613	613	52256	53526	336
52256	53941	sib11AndDch	12	613	613	52256	53941	336
52256	52269	sib11AndDch	13	613	613	52256	52269	336
52256	52270	sib11AndDch	14	613	613	52256	52270	336
52256	20702	sib11AndDch	15	613	613	52256	20702	336
52256	20701	sib11AndDch	16	613	613	52256	20701	336
52256	20700	sib11AndDch	17	613	613	52256	20700	336
52257	51784	sib11AndDch	1	613	613	52257	51784	352
52257	64001	sib11AndDch	2	613	802	52257	64001	352
52257	52256	sib11AndDch	3	613	613	52257	52256	352
52257	64002	sib11AndDch	4	613	802	52257	64002	352
52257	20704	sib11AndDch	5	613	620	52257	20704	352
52257	53396	sib11AndDch	6	613	613	52257	53396	352
52257	48063	sib11AndDch	7	613	613	52257	48063	352
52257	47959	sib11AndDch	8	613	613	52257	47959	352
52257	53526	sib11AndDch	9	613	613	52257	53526	352
52257	53041	sib11AndDch	10	613	613	52257	53041	352

☒ Generate Google Earth files

Reference (F1) Cell Radius [Km] -> 0.1 Neighbors file: 3G-3G_Neighbors_Demo.csv

Cancel OK

Up to the contents of the input neighbors declarations file you should selected accordingly the right option (3G->3G or 3G->2G or 2G->2G) into the form presented above.

The **3G cells** (Source and/or Target) can be unique identified by selecting and making the right column correspondence for the following fields:

- cellId + RncId or
- localCellId

The **2G cells** (Source and/or Target) can be unique identified by selecting and making the right column correspondence for the following field:

- cellId

Optionally (if this info is available) you may provide the specific neighbors information regarding the **sib11orDch** an **Priority** allocations.

If it is desired to generate the neighbors for Google Earth too, then you should be sure the Google Earth output is selected (check on left bottom of the form: **Generate Google Earth files**) with the appropriate cells radius.

Below it is presented an example for the case of the neighbors 3G-2G:

Agileto [M3.2|V1.22] => Neighbors database -> MapInfo + GoogleEarth [Converters]

Please select the Neighbors declarations type and their columns associated correspondence

Neighbors Declarations

Neighbors declarations type:
(3G->3G or 3G->2G or 2G->2G)

☐ 3G->3G ☒ 3G->2G ☐ 2G->2G

3G Source Cells Format:

☐ cellId + RncId ☒ localCellId

Source Cells Columns correspondence:

localCellId Local_CID S

2G Target Cells Format:

☒ cellId

Target Cells Columns correspondence:

cellId Cell_ID T

Optional Inputs:

sib11orDchUsage / Priority correspondence:

sib11orDch sib11OrDchUsage

Priority Priority

Preview of the Neighbors declarations file:

Local_CID S	Cell_ID T	sib11OrDchUsage	Priority	RNC_Source	CID S
52256	6488	sib11AndDch	1	613	52256
52256	6534	sib11AndDch	2	613	52256
52256	6489	sib11AndDch	3	613	52256
52256	34157	sib11AndDch	4	613	52256
52256	34150	sib11AndDch	5	613	52256
52256	5647	sib11AndDch	6	613	52256
52256	15679	sib11AndDch	7	613	52256
52256	25646	sib11AndDch	8	613	52256
52256	25623	sib11AndDch	9	613	52256
52256	5675	sib11AndDch	10	613	52256
52256	21081	sib11AndDch	11	613	52256
52257	6488	sib11AndDch	1	613	52257
52257	6534	sib11AndDch	2	613	52257
52257	6489	sib11AndDch	3	613	52257
52257	5647	sib11AndDch	4	613	52257
52257	15647	sib11AndDch	5	613	52257
52257	25646	sib11AndDch	6	613	52257
52257	21115	sib11AndDch	7	613	52257
52257	6547	sib11AndDch	8	613	52257
52257	5675	sib11AndDch	9	613	52257
52257	15675	sib11AndDch	10	613	52257
51784	6488	sib11AndDch	1	613	51784
51784	6534	sib11AndDch	2	613	51784
51784	6489	sib11AndDch	3	613	51784
51784	5646	sib11AndDch	4	613	51784
51784	15646	sib11AndDch	5	613	51784
51784	25646	sib11AndDch	6	613	51784

☒ Generate Google Earth files

Reference (F1) Cell Radius [Km] -> 0.1

Neighbors file: 3G-2G_Neighbors_Demo.csv

Cancel OK

Up to the type of the neighbors declarations selected (3G->3G or 3G->2G or 2G->2G) one the following messages will occur presenting the completion of the data processing as well as the files and the place where they have been saved. As examples, please see the following cases mentioned below:

case 3G-3G:

Agileto [M3.2|V1.17] => Neighbors database -> MapInfo & GoogleEarth [Converters]

MapInfo & Google Earth neighbors generation is completed! => Run Time: 08Oct2011 02:41:38-02:42:00 [22sec]

A) The output MapInfo neighbors files have been generated:

Path: C:\Agileto\ATT\MapInfo\Neigh_DB-MI\3G-3G_Neighbors_Demo

1: 3G-3G_Neighbors_Demo_3G3G-All.csv -> (3G3G: -> All declarations)

2: 3G-3G_Neighbors_Demo_3G3G-IntraFrq.csv -> (3G3G: -> Intra-Frequency declarations)

3: 3G-3G_Neighbors_Demo_3G3G-InterFrq.csv -> (3G3G: -> Inter-Frequency declarations)

(to visualize them in MapInfo please use the module 3.3)

B) The output Google Earth neighbors file has been generated:

Path: C:\Agileto\ATT\GoogleEarth\Neigh_GE\3G-3G_Neighbors_Demo

File: Neighbors.kmz

(to visualize it in Google Earth please use the module 1.4)

OK

case 3G-2G:



The ***.csv** files generated as output of this module (M3.2) may be used as inputs for the module [M3.3](#) into the same manner like the output files of the module [M3.1](#) (Case 2).

All type of the neighbors (3G->3G and 3G->2G and 2G->2G) are generated spatially (3D) in Google Earth as they have been presented at the end of the previous chapter ([3.1](#))

The neighbors which are recorded into ***.kmz** file (**Neighbors.kmz**) may be visualized in Google Earth (by using the module [M1.4](#)) and the neighbors legend is the same like it was presented (with example) into the previous chapter ([3.1](#)).

3.3) MapInfo Neighboring tool (3G <=> 3G or 3G <=> 2G)

This module is used to activate MapInfo Neighboring tool which means to let you see visually in MapInfo representation the neighbor relationships between different cells (3G->3G or 3G->2G). The tool provides the possibility of changing (add/remove) the currently neighbors configuration and then to export these changes in different files formats; these neighbors changes may be converted by the tool ([M3.1](#)) into the right format (**Work Order**) in order to import them directly into OMC 3G.

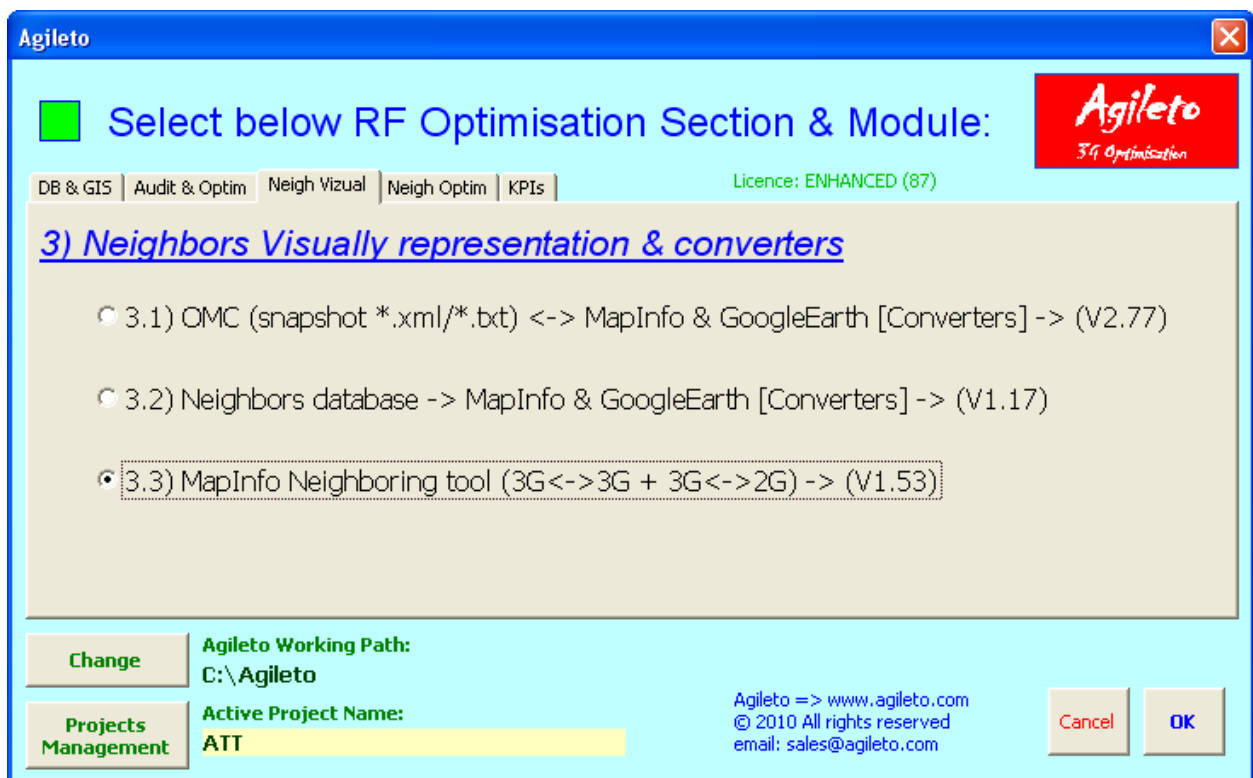
Remember:

1) Please notice that before using this module (M3.3) you need to run in advance the module [M1.2](#) in order to generate the MapInfo 3G & 2G cells/sites objects and you need to have already opened MapInfo workspace named “**MobileNW.wor**” or other similar workspace containing the necessary MapInfo *.tab layers (Sites_3G, Cells_3G_F1, Cells_3G_F2, ...Cells_3G_FX, + Sites_2G, Cells_2G). -> For this last purpose (View Mobile 3G/2G Networks in MapInfo) you may use the module [M1.4](#).

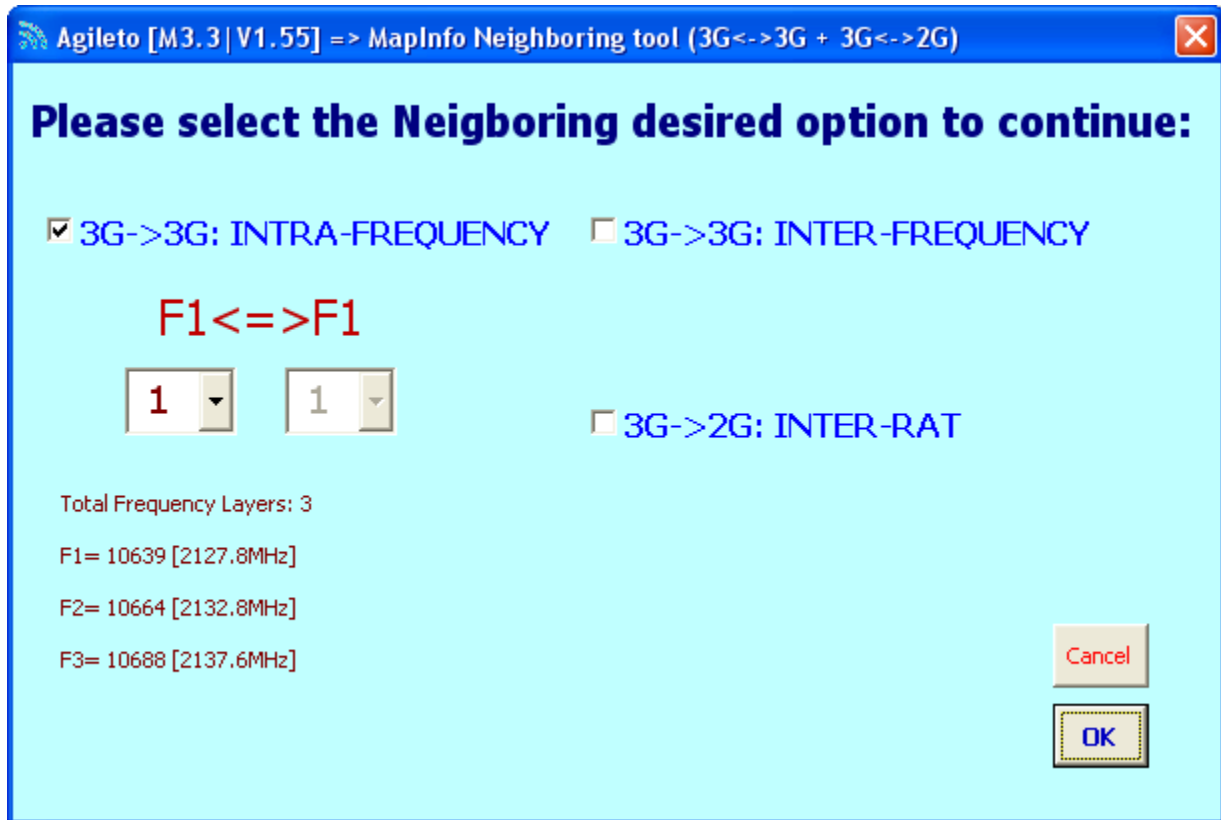
2) Also you have to run in advance the module [M3.1](#) (or [M3.2](#)) in order to get the neighbors declarations into the right format accepted to be imported in MapInfo.



Choose Start option and after this, module nr. M3.3:



Choose OK and you will get the following window:

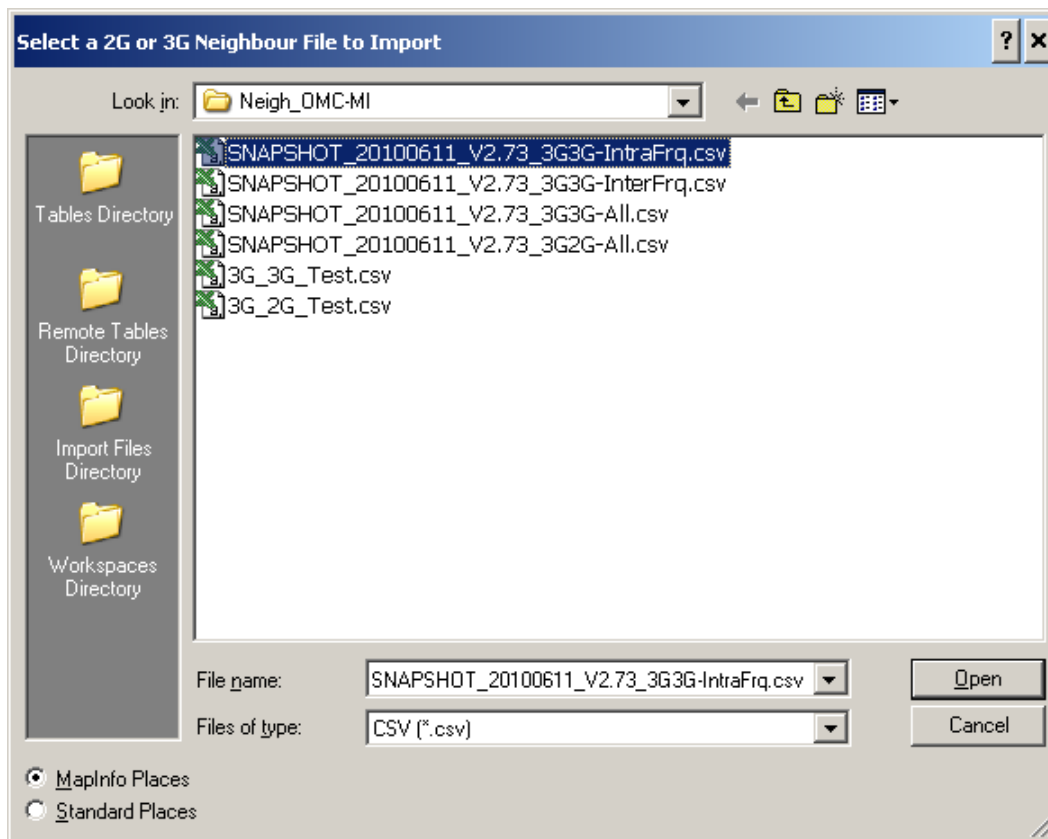


Here you can choose several options according with your needs, as following:

- **3G-3G: Intra-Frequency** or,
- **3G-3G Inter-Frequency** or,
- **3G-2G Inter-RAT.**

Also you can choose the frequency layers to be used [F1, F2, up to F10] according with the frequency layers detected in advance into the OMC 3G snapshot file.

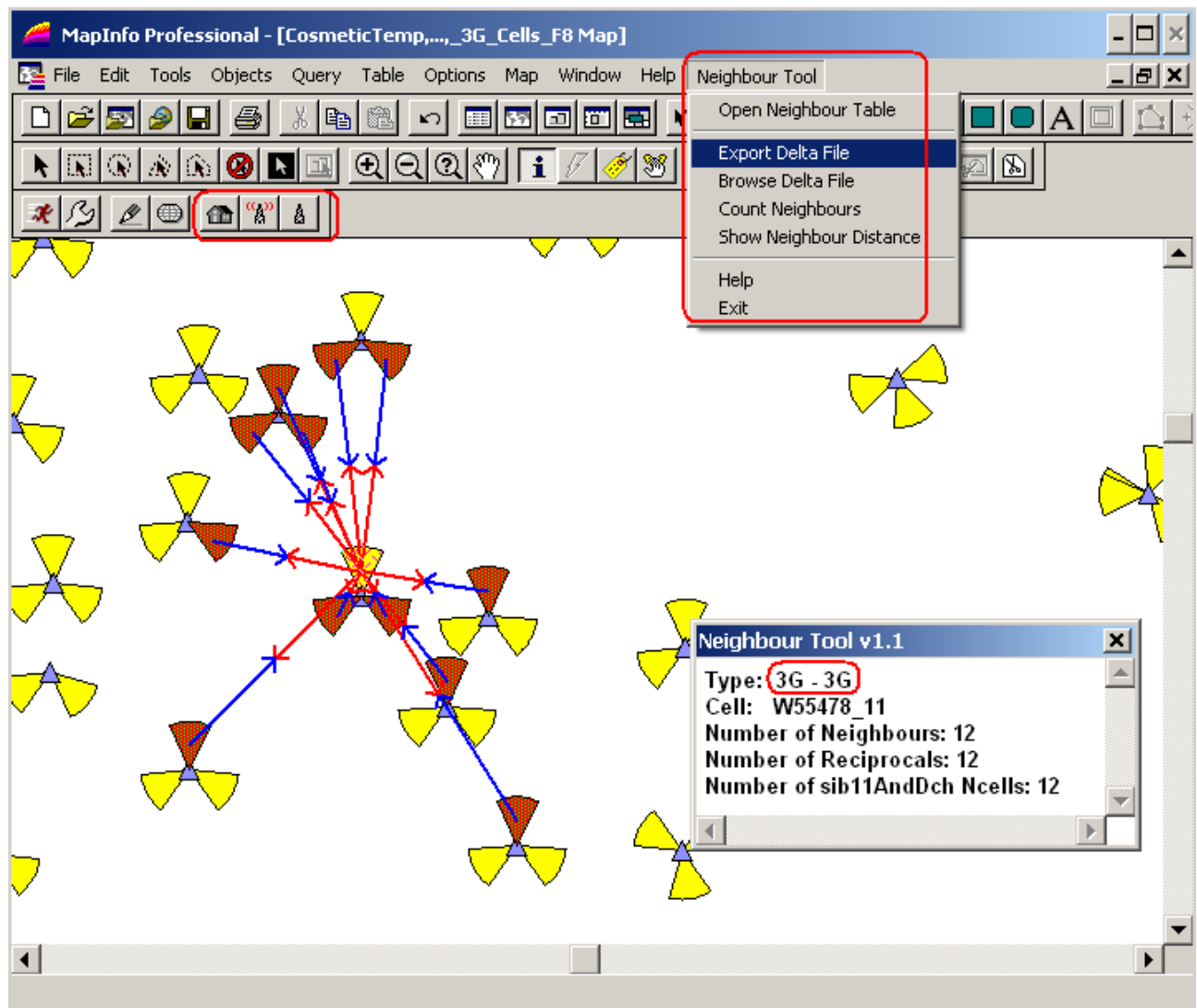
Choose OK and you will see the specific MapInfo neighboring tool pop-up message asking you to provide the input neighbors file (3G->3G or 3G->2G), as following:



-> The (*.csv) file that should be provided as input like into the above picture represents the 3G->3G or 3G->2G neighbors file into the right format accepted by MapInfo neighboring tool. These files should be prepared in advance as output(s) of the module [M3.1](#) (or [M3.2](#)). For more details regarding the structure of the neighbors file to be imported in MapInfo please see the Annex named '[MapInfo Neighbors import file](#)'.

The installation kit of the tool is coming with two neighbors test files (**3G_3G_Test.csv** / **3G_2G_Test.csv**) which will be always copied and stored under the directory: "Working Path"...**\Agileto\ActiveProject\MapInfo\Neigh_OMC-MI**. They may be used as right references formatted 3G-3G/3G-2G neighbors files in case any troubleshooting action is required.

Choose the desired neighbors (*.csv) file and then push OK. MapInfo Neighboring tool will take now the immediate control of Agileto software tool like it is presented into the picture below (this is an example of the neighbors for the case 3G->3G):



You will notice in MapInfo on the right top main menu a new menu named “**Neighbour Tool**” like into the above picture. There are now available new icons – see on the above picture and on the below pictures in focus - (to be pressed) which will allow the user to execute the following neighbors operations:

- **Show Neighbors**
- **Add Neighbors**
- **Remove Neighbors**



MapInfo Neighboring tool allows you to export all the 3G->3G and 3G->2G neighbors changes performed visually in MapInfo into a *.csv Delta file (see this option into the above picture under the ‘Neighbour Tool’ menu). This file may be used by the module [M3.1](#) in order to convert all the neighbors changes performed in MapInfo directly into a suitable format to be imported into OMC 3G network.

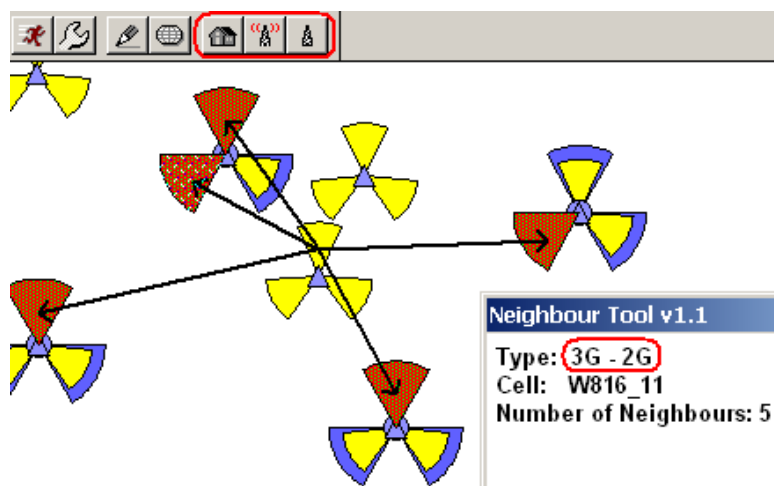
To activate **Show/Add/Remove** neighbors operations you need to do the following:

- 1) Select (press) ‘Show Neighbours’ icon;

- 2) Select the reference 3G cell (all its neighbors will be displayed);
- 3) Select (press) the desired operation to be performed (Add/Remove Neighbours);
- 4) Select the target 3G/2G cell; => the user will see updated visually in MapInfo the new set of the neighbors according with the operation selected in advance.

Below it is presented a screenshot representing a case of 3G->2G neighbors how they are seen into MapInfo Neighboring tool.

Example of the neighbors case type 3G->2G:



Network Optimisation (audit and proposal)

4.1) Network Optimisation based on Drive Tests

This module may be used for two main purposes/cases, as following:

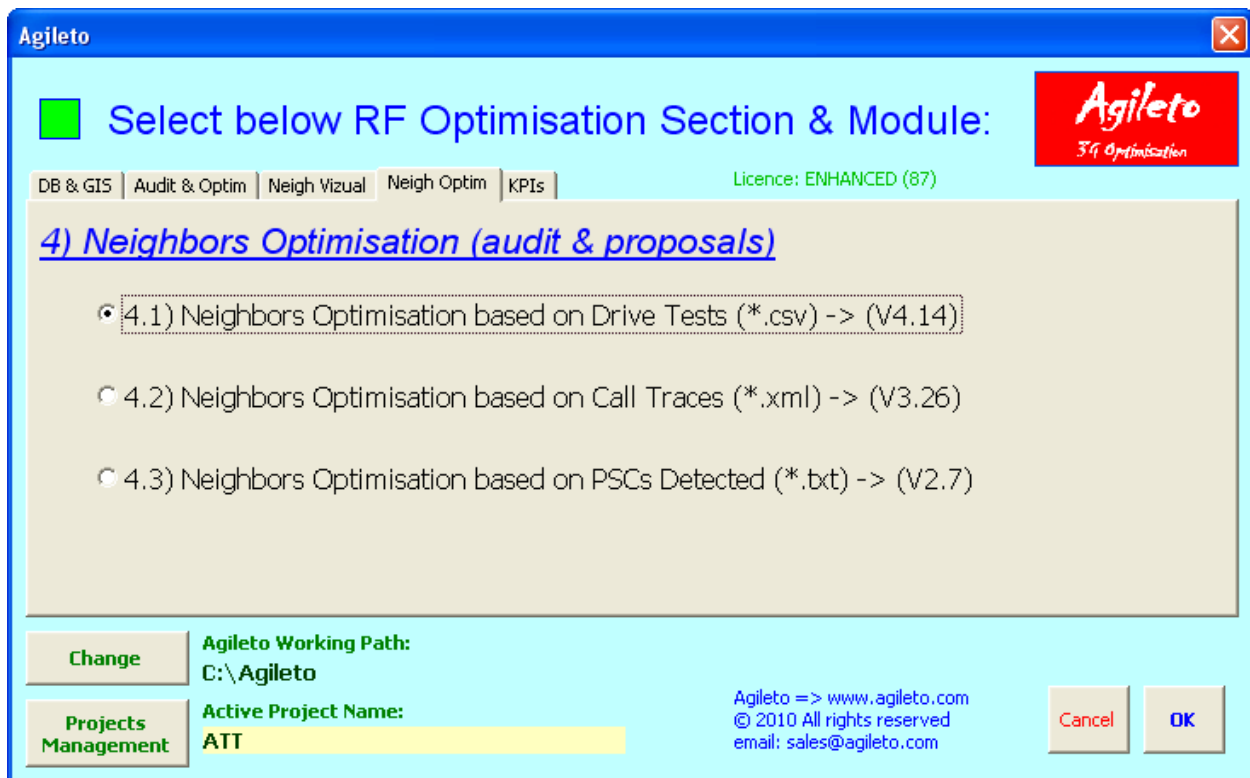
- **Drive Test Analysis**
- **Drive Test Optimisation**

As mentioned by their suggestive names, each case mentioned above is used mainly for the following activities related to the drive test:

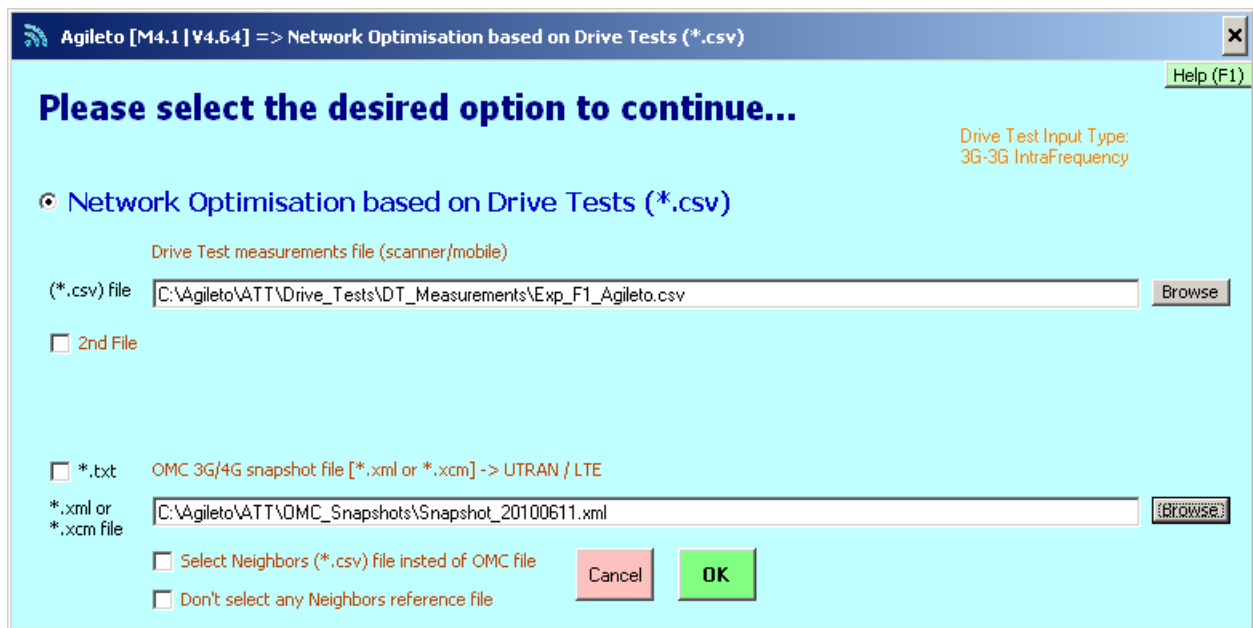
- **Analysis** -> this case is used just to represent a specific drive test metric into MapInfo & Google Earth for the analysis purpose;
- **Optimisation** -> this case is more complex than the above as it involves supplementary intelligent optimization rules/actions provided by the tool as they will be documented later on this document.



Choose Start option and after this, module nr. 4.1)



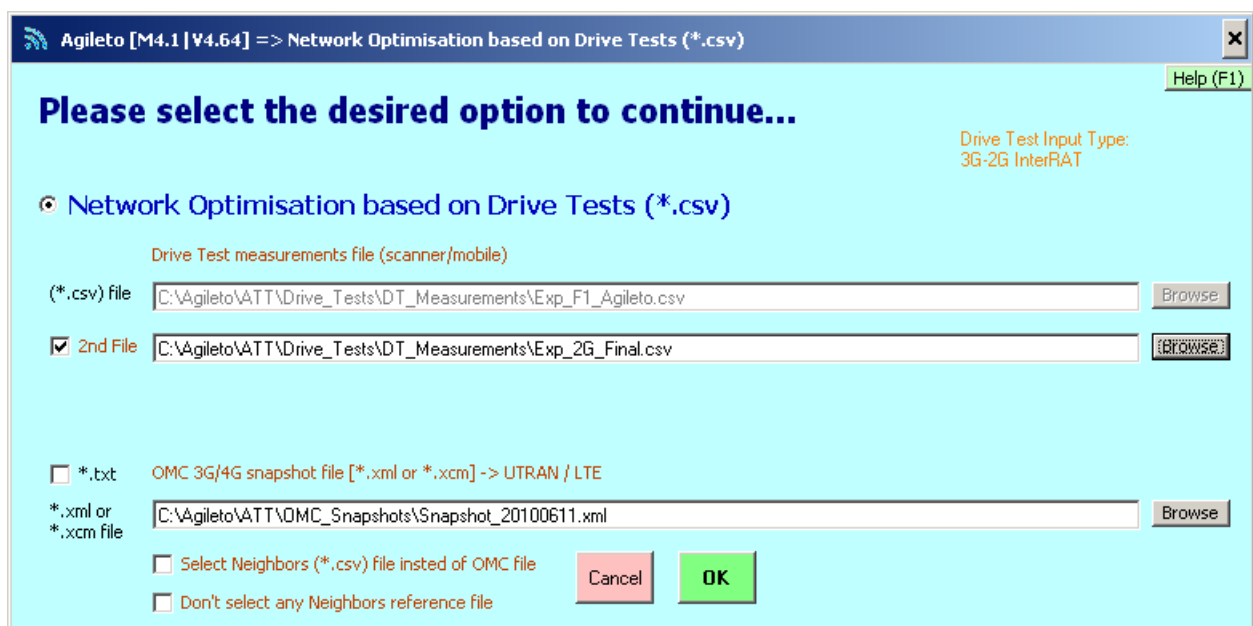
Choose OK and you will get the following window:



-> The *.csv file should be **File #4** (See “[Before you start](#)”) containing the Drive test measurements data (scanner/mobile measurements data). For more details about the structure of this file, please see the Annex named “[Drive Tests measurements \(scanner/mobile\) file](#)”.

-> OMC 3G snapshot file contains the 3G/2G network configuration details and may be obtained in different formats: *.xml, *.xcm, *.txt - up to the 3G vendor - **File #1** (see chapter “[Before you start](#)”).

Please notice that you may provide as input the second (2nd) Drive Test file by selecting this option (2nd File) into the above window (see an example below).



Up to the format provided for the 1st and the 2nd Drive Test file(s) you will be notified on the top right area (see the brown text) with the **Drive Test Input Type** that could be one of the following:

- **Drive Test Analysis** (case of only mapping the desired Drive Test metric into MapInfo & Google Earth);
- **3G-3G IntraFrequency** (see above the first case);
- **3G-3G InterFrequency** (see below the first case);
- **3G-2G InterRAT** (GSM, see above the last case);
- **2G-2G IntraGSM** (see below).

Please see below some different other cases for exemplification:

3G-3G InterFrequency:

Agileto [M4.1 | V4.64] => Network Optimisation based on Drive Tests (*.csv) Help (F1)

Please select the desired option to continue...

Drive Test Input Type:
3G-3G InterFrequency

☒ **Network Optimisation based on Drive Tests (*.csv)**

Drive Test measurements file (scanner/mobile)

(* .csv) file: Browse

☒ **2nd File** Browse

☐ *.txt OMC 3G/4G snapshot file [*.xml or *.xcm] -> UTRAN / LTE

*.xml or *.xcm file: Browse

☐ Select Neighbors (*.csv) file insted of OMC file

☐ Don't select any Neighbors reference file

Cancel OK

2G-2G IntraGSM:

Agileto [M4.1 | V4.64] => Network Optimisation based on Drive Tests (*.csv) Help (F1)

Please select the desired option to continue...

Drive Test Input Type:
2G-2G IntraGSM

☒ **Network Optimisation based on Drive Tests (*.csv)**

Drive Test measurements file (scanner/mobile)

(* .csv) file: Browse

☐ 2nd File

Neighbors reference file (*.csv) is provided below as input

*.csv file: Browse

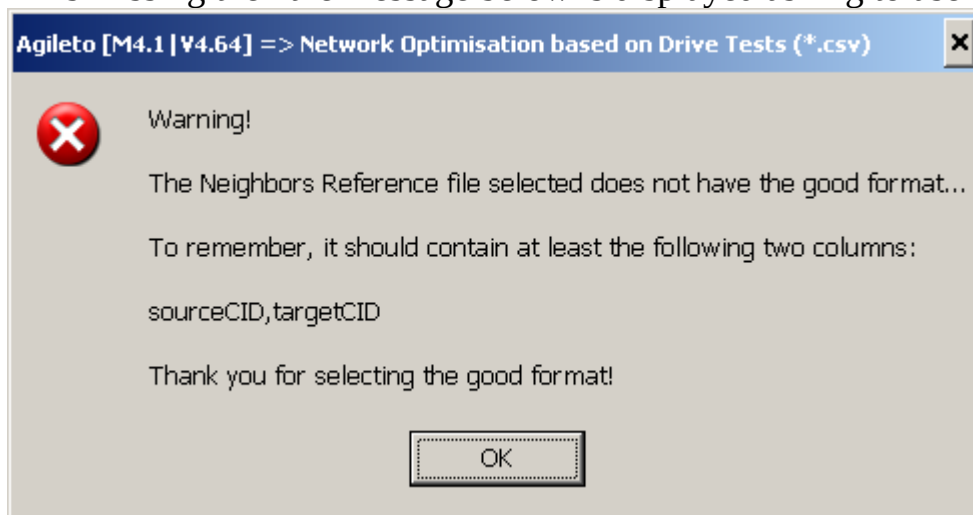
☒ Select Neighbors (*.csv) file insted of OMC file

☐ Don't select any Neighbors reference file

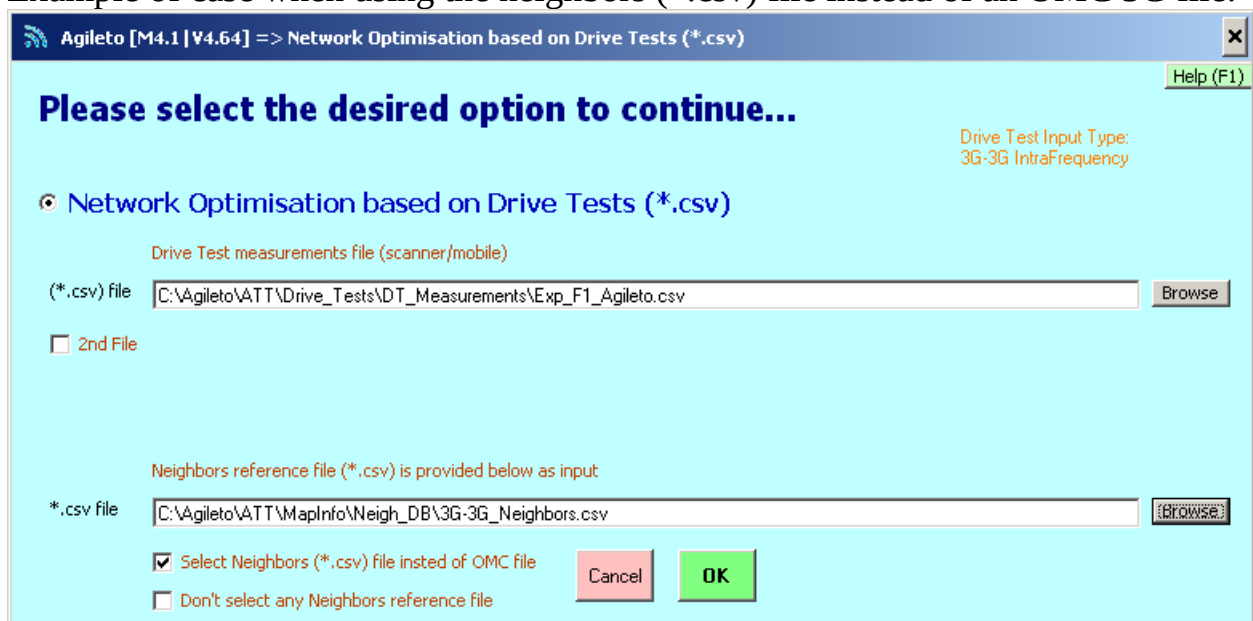
Cancel OK

Reference neighbors data:

1. For the purpose of Neighbors analysis & optimization based on the Drive Test measurements data it may be provided (check on the form the lower input file area) as input the 3G OMC snapshot file.
2. In case the 3G OMC snapshot file is not available it may be provided instead the neighbors (*.csv) file by selecting the option “**Select Neighbors (*.csv) file instead of OMC file**” (like it was selected automatically into the previous screenshot); this case the neighbors file should contain at least two columns representing the Cell_IDs of the source and target cells and having the standard headers (columns names) as: **sourceCID, targetCID**; in case the standard format is missing then the message below is displayed asking to use the good format.



Example of case when using the neighbors (*.csv) file instead of an OMC 3G file:



3. In case that neither the 3G OMC snapshot file or the Neighbors (*.csv) file are available then it may be selected the option “**Don’t select any Neighbors reference file**”; this case the output neighbors analysis & optimization results will still provide the best suggested neighbors results but the comparison with the initial neighbors declarations will be no more relevant.

Example of case “Don’t select any Neighbors reference file”:

Agileto [M4.1 | V4.64] => Network Optimisation based on Drive Tests (*.csv)

Please select the desired option to continue...

Drive Test Input Type:
3G-3G IntraFrequency

☒ Network Optimisation based on Drive Tests (*.csv)

Drive Test measurements file (scanner/mobile)

(* .csv) file: C:\Agileto\ATT\Drive_Tests\DT_Measurements\Exp_F1_Agileto.csv

☐ 2nd File

☒ Don't select any Neighbors reference file

Cancel OK

After providing the relevant information on the previous form, choose OK and you will get the one of the following main forms (up to the content of the Drive Test measurement file) which will be detailed further:

- **Drive Test Analysis** or,
- **Drive Test Optimisation.**

Example of the case **Drive Test Analysis**:

Agileto [M4.1 | V4.64] => Network Optimisation based on Drive Tests (*.csv)

Please select below the desired option and its associated parameters as appropriate

☒ Drive Test Analysis ☐ Drive Test Optimisation

Preview of the Drive Test data file [1]: ☒ DT 1st File ☐ DT 2nd File

GPS Latitude WGS84 ---> Latitude

GPS Longitude WGS84 ---> Longitude

Time Stamp ---> Time

Spatial bin size [m] ---> 10 ☒ Perform Spatial Binning

Drive Test Analysis

Drive Test Parameter Header Selection:

Parameter Selected -> TOP 1 CPICH Ec/No

Parameter Name ---> TOP_1_CPICH_EcNo

Legend Parameter values:

☐ Legend ascending <- OR -> ☒ Legend descending

Value <= Threshold_1 = -15 ---> [Red]

Value <= Threshold_2 = -13 ---> [Pink]

Value <= Threshold_3 = -11 ---> [Orange]

Value <= Threshold_4 = -9 ---> [Yellow]

Value <= Threshold_5 = -6 ---> [Cyan]

Value > Threshold_5 = -6 ---> [Green]

Time	Latitude	Longitude	TOP 1 SC	TOP 1 CPICH Ec/No	TOP 1 CPICH RSCP
15 May 2012 11:25:3...	45.757...	4.84250...	64	-7.362999916	-91.66000366
15 May 2012 11:25:3...	45.757...	4.84250...	64	-6.234000206	-87.85900116
15 May 2012 11:25:4...	45.757...	4.84250...	64	-6.477000237	-89.35199738
15 May 2012 11:25:4...	45.757...	4.8425072	64	-6.977000237	-89.61699677
15 May 2012 11:25:4...	45.757...	4.8425072	64	-8.87100029	-93.08999634
15 May 2012 11:25:4...	45.757...	4.84250...	64	-9.758000374	-94.08599854
15 May 2012 11:25:4...	45.757...	4.84250...	64	-7.977000237	-92.43000031
15 May 2012 11:25:4...	45.757...	4.84250...	64	-7.070000172	-91.30500031
15 May 2012 11:25:4...	45.757...	4.84251...	64	-6.664000034	-91.06999969
15 May 2012 11:25:4...	45.757...	4.8425119	64	-6.570000172	-89.66400146
15 May 2012 11:25:4...	45.757...	4.8425119	64	-6.507999897	-89.58599854
15 May 2012 11:25:4...	45.757...	4.84251...	64	-6.054999828	-88.86699677
15 May 2012 11:25:4...	45.757...	4.84251...	64	-6.176000118	-89.11299896
15 May 2012 11:25:4...	45.757...	4.84251...	64	-6.565999985	-88.48799896
15 May 2012 11:25:4...	45.757...	4.84251...	64	-6.159999847	-88.44100189
15 May 2012 11:25:4...	45.757...	4.84251...	64	-7.176000118	-89.98799896
15 May 2012 11:25:4...	45.757...	4.84251...	64	-6.776999995	-88.8710022
15 May 2012 11:25:5...	45.757...	4.84251...	64	-6.742000103	-89.21099854
15 May 2012 11:25:5...	45.757...	4.84251...	64	-6.602000237	-89.91400146
15 May 2012 11:25:5...	45.757...	4.84251...	64	-6.120999813	-89.16799927
15 May 2012 11:25:5...	45.757...	4.8425182	64	-6.065999985	-89.45700073
15 May 2012 11:25:5...	45.757...	4.8425182	64	-6.320000172	-88.97699738
15 May 2012 11:25:5...	45.757...	4.8425274	64	-6.625	-90.06300354
15 May 2012 11:25:5...	45.757...	4.842528	64	-6.179999828	-89.28900146
15 May 2012 11:25:5...	45.757...	4.842528	64	-5.198999882	-88.7460022
15 May 2012 11:25:5...	45.757...	4.8425287	64	-5.609000206	-89.45300293
15 May 2012 11:25:5...	45.757...	4.8425287	64	-5.519999981	-88.78500366
15 May 2012 11:25:5...	45.757...	4.84252...	64	-5.926000118	-88.51999664
15 May 2012 11:25:5...	45.757...	4.84253...	64	-6.995999813	-90.98000336
15 May 2012 11:25:5...	45.757...	4.84253...	64	-6.237999916	-90.14499664
15 May 2012 11:25:5...	45.757...	4.84253...	64	-7.039000034	-91.81999969
15 May 2012 11:25:5...	45.757...	4.84253...	64	-7.742000103	-92.80500031
15 May 2012 11:25:5...	45.757...	4.84253...	64	-7.664000034	-92.93000031

Generate Google Earth Files ☒ Generate MapInfo Files ☒ Export Data Spatial Binned ☒

Drive Test 1st File: Exp_F1_Agileto.csv

Cancel OK

Example of the case **Drive Test Optimisation**:

Agileto [M4.1 | V4.64] => Network Optimisation based on Drive Tests (*.csv)

Please select below the desired option and its associated parameters as appropriate

☐ Drive Test Analysis
 ☒ Drive Test Optimisation

Preview of the Drive Test data file [1]: ☒ DT 1st File ☐ DT 2nd File

GPS Latitude WGS84 ----> Latitude
 GPS Longitude WGS84 --> Longitude
 Time Stamp ----> Time
 Spatial bin size [m] ----> 10 ☒ Perform Spatial Binning

Drive Test Optimisation

Case: 3

3G -> 2G
[InterRAT(GSM)]

Total Frequency Layers: 4

F1= 10639 [2127.8MHz]
F2= 10664 [2132.8MHz]
F3= 10688 [2137.6MHz]
F7= 2950 [590MHz]

☐ Perform only IntraGSM [2G-2G] analysis
☐ Select only 3G-3G Intra-Frequency -> case [1]
☐ Neighbors analysis will be triggered by RSCP and NOT by EcNo values

EcNoMin [dB] = -20
 RSCPMIn [dBm] = -115
 Active Set Delta [dB] (trigger by EcNo) = 3
 Monitor Delta [dB] (trigger by EcNo) = 8
 RSSIMin [dBm] = (GSM) -100

3G Frq Layer = [Source] 1
 nrBS [Source] = 6
 nrBS [Target] = 6
 Minimum weight [%] = 1.01
 Neighbors contribution
 Top X = (To be represented) 1
 Radius [Km] = (Reference 3G F1) 0.1

☒ GE neighbors lines have variable widths (up to nr of occurrences)
☒ Display into GE movie "ActiveSet_RePlay" the summary info for each point

☒ Generate Google Earth Files
☒ Generate MapInfo Files
☒ Export Data Spatial Binned

Drive Test 1st File: Exp_F1_Agileto.csv
Drive Test 2nd File: SCANNER 2G TOP6.csv

Cancel OK

Time	Latitude	Longitude	TOP 1 SC	TOP 1 CPICH Ec/No	TOP 1 CPICH RSCP
15 May 2012 11:25:3...	45.757...	4.84250...	64	-6.313000202	-90.53099823
15 May 2012 11:25:3...	45.757...	4.84250...	64	-7.362999916	-91.66000366
15 May 2012 11:25:3...	45.757...	4.84250...	64	-6.234000206	-87.85900116
15 May 2012 11:25:4...	45.757...	4.84250...	64	-6.477000237	-89.35199738
15 May 2012 11:25:4...	45.757...	4.8425072	64	-6.977000237	-89.61699677
15 May 2012 11:25:4...	45.757...	4.8425072	64	-8.87100029	-93.08999634
15 May 2012 11:25:4...	45.757...	4.84250...	64	-9.758000374	-94.08599854
15 May 2012 11:25:4...	45.757...	4.84250...	64	-7.977000237	-92.43000031
15 May 2012 11:25:4...	45.757...	4.84250...	64	-7.070000172	-91.30500031
15 May 2012 11:25:4...	45.757...	4.84251...	64	-6.664000034	-91.06399969
15 May 2012 11:25:4...	45.757...	4.8425119	64	-6.570000172	-89.66400146
15 May 2012 11:25:4...	45.757...	4.8425119	64	-6.507999897	-89.58599854
15 May 2012 11:25:4...	45.757...	4.84251...	64	-6.054999828	-88.86699677
15 May 2012 11:25:4...	45.757...	4.84251...	64	-6.176000118	-89.11299896
15 May 2012 11:25:4...	45.757...	4.84251...	64	-6.565999885	-88.48799896
15 May 2012 11:25:4...	45.757...	4.84251...	64	-6.159999847	-88.44100189
15 May 2012 11:25:4...	45.757...	4.84251...	64	-7.176000118	-89.98799896
15 May 2012 11:25:4...	45.757...	4.84251...	64	-6.776999995	-88.87100022
15 May 2012 11:25:5...	45.757...	4.84251...	64	-6.742000103	-89.21099854
15 May 2012 11:25:5...	45.757...	4.84251...	64	-6.602000237	-88.91400146
15 May 2012 11:25:5...	45.757...	4.84251...	64	-6.120999813	-89.16799927
15 May 2012 11:25:5...	45.757...	4.8425182	64	-6.065999985	-89.45700073
15 May 2012 11:25:5...	45.757...	4.8425182	64	-6.320000172	-88.97699738
15 May 2012 11:25:5...	45.757...	4.8425274	64	-6.625	-90.06300354
15 May 2012 11:25:5...	45.757...	4.842528	64	-6.179999828	-89.28900146
15 May 2012 11:25:5...	45.757...	4.842528	64	-5.198999882	-88.74600022
15 May 2012 11:25:5...	45.757...	4.8425287	64	-5.609000206	-89.45300293
15 May 2012 11:25:5...	45.757...	4.8425287	64	-5.519999981	-88.78500366
15 May 2012 11:25:5...	45.757...	4.84252...	64	-5.926000118	-88.51999664
15 May 2012 11:25:5...	45.757...	4.84253...	64	-6.995999813	-90.98000336
15 May 2012 11:25:5...	45.757...	4.84253...	64	-6.237999916	-90.14499664
15 May 2012 11:25:5...	45.757...	4.84253...	64	-7.039000034	-91.81399969
15 May 2012 11:25:5...	45.757...	4.84253...	64	-7.742000103	-92.80500031
15 May 2012 11:25:5...	45.757...	4.84253...	64	-7.654000034	-92.93000031

Both Drive Test options mentioned above (**Analysis** and **Optimisation**) are providing **summary statistics** about the drive test performance with output representations for each point of the drive test into MapInfo & Google Earth, as following:

- Total duration of the drive test [100%];
- Total duration of the drive test without GPS information [x%];
- Total duration of the drive test without scanner/mobile data information [y%];
- Total duration of the drive test in static position (no mobility detected) [z%];
- Total duration of the drive test validated [100-x-y-z %].

The information mentioned above is provided very fast and it is very useful in order to evaluate the quality of the drive test. As example, please see below a virtual case which may lead to the conclusion that the drive test needs to be repeated because of the very bad drive test statistics/quality => that means an important time of the drive test has been performed without GPS info recorded, or no scanner/mobile data recorded, or no mobility detected.

Example of a bad Drive Test summary/quality performance results:

- Total duration of the drive test = 5 hours [100%]
- Total duration of the drive test without GPS information = 20 min [6.67%];
- Total duration of the drive test without scanner/mobile data information = 10 min [3.33%];
- Total duration of the drive test in static position (no mobility detected) = 1 hour and 30 min [30%];
- Total duration of the drive test validated = 3 hours [60%] (100-6.67-3.33-30)

It should be remarked into the above “bad” Drive Test example that from a total drive test time of 5 hours only 3 hours [60%] of the drive test can be used properly, the other remaining 2 hours drive test time spent by the drive test team being not useful for the drive test analysis due to different issues (missing GPS data, missing scanner/mobile device data, no mobility detected).

On many cases the drive test activities are externalized to different specialized companies and need to be evaluated properly and fast. These kind of **summary statistics** are automatically evaluated by Agileto tool which may help a lot the RF Engineer involved into the drive test analysis/optimization in order to qualify quickly if a drive test may be accepted as validated (after certain criteria) or needs to be performed once again.

A) Drive Test Analysis:

This case is used mainly to get the drive test summary statistics and representation into MapInfo and Google Earth of a desired Drive Test parameter (exported into the Drive Test measurement data *.csv file); this parameter can be selected by the user (as per desired) who may modify as well the associated Legend, too.

The minimum information necessary to be included into the Drive Test measurement file and provided by the user as appropriate is the following (see for reference the screenshot below):

- **GPS Latitude** (WGS84);
- **GPS Longitude** (WGS84);
- **Time Stamp** (optional);
- **Parameter Selected**;
- **Parameter Name** (optional) -> this is the name of the ‘Parameter Selected’ how it will occur into MapInfo & Google Eearth representations;
- **Legend Parameter values** (ranges and colors).

Please select below the desired option and its associated parameters as appropriate

☒ Drive Test Analysis ☐ Drive Test Optimisation

Preview of the Drive Test data file [1]: ☒ DT 1st File ☐ DT 2nd File

GPS Latitude WGS84 ---> Latitude

GPS Longitude WGS84 ---> Longitude

Time Stamp ---> Time

Spatial bin size [m] ---> 10 ☐ Perform Spatial Binning

Drive Test Analysis

Drive Test Parameter Header Selection:

Parameter Selected -> TOP 1 CPICH Ec/No

Parameter Name ---> TOP_1_EcNo

Legend Parameter values:

☐ Legend ascending <- OR -> ☒ Legend descending

Value <= Threshold_1 = -15 ---> [Red]

Value <= Threshold_2 = -13 ---> [Pink]

Value <= Threshold_3 = -11 ---> [Orange]

Value <= Threshold_4 = -9 ---> [Yellow]

Value <= Threshold_5 = -6 ---> [Cyan]

Value > Threshold_5 = -6 ---> [Green]

Time	Latitude	Longitude	TOP 1 SC	TOP 1 CPICH Ec/No	TOP 1 CPICH RSCP
15 May 2012 11:25:3...	45.757...	4.84249...	64	-5.22300005	-90.23799896
15 May 2012 11:25:3...	45.757...	4.84249...	64	-5.390999794	-89.53099823
15 May 2012 11:25:3...	45.757...	4.84249...	64	-5.390999794	-89.5
15 May 2012 11:25:3...	45.757...	4.84250...	64	-5.203000069	-89.42199707
15 May 2012 11:25:3...	45.757...	4.84250...	64	-5.203000069	-89.5
15 May 2012 11:25:3...	45.757...	4.84250...	64	-5.90199995	-87.52700043
15 May 2012 11:25:4...	45.757...	4.84250...	64	-5.90199995	-88.77700043
15 May 2012 11:25:4...	45.757...	4.8425072	64	-6.945000172	-89.58599854
15 May 2012 11:25:4...	45.757...	4.8425072	64	-6.945000172	-91.16400146
15 May 2012 11:25:4...	45.757...	4.84250...	64	-7.519999981	-91.84799957
15 May 2012 11:25:4...	45.757...	4.84250...	64	-7.519999981	-91.97299957
15 May 2012 11:25:4...	45.757...	4.84250...	64	-7.617000103	-91.85199738
15 May 2012 11:25:4...	45.757...	4.84251...	64	-7.617000103	-92.02300262
15 May 2012 11:25:4...	45.757...	4.8425119	64	-6.801000118	-89.89499664
15 May 2012 11:25:4...	45.757...	4.8425119	64	-6.801000118	-89.87899978
15 May 2012 11:25:4...	45.757...	4.84251...	64	-6.992000103	-89.80500031
15 May 2012 11:25:4...	45.757...	4.84251...	64	-6.992000103	-89.93000031
15 May 2012 11:25:4...	45.757...	4.84251...	64	-6.906000137	-88.82800293
15 May 2012 11:25:4...	45.757...	4.84251...	64	-6.906000137	-89.18800354
15 May 2012 11:25:4...	45.757...	4.84251...	64	-7.313000202	-90.125
15 May 2012 11:25:4...	45.757...	4.84251...	64	-7.313000202	-89.40599823
15 May 2012 11:25:5...	45.757...	4.84251...	64	-7.507999897	-89.97699738
15 May 2012 11:25:5...	45.757...	4.84251...	64	-7.507999897	-89.81999969
15 May 2012 11:25:5...	45.757...	4.84251...	64	-7.727000237	-90.77300262
15 May 2012 11:25:5...	45.757...	4.8425182	64	-7.727000237	-91.11699677
15 May 2012 11:25:5...	45.757...	4.8425182	64	-8.477000237	-91.13300323
15 May 2012 11:25:5...	45.757...	4.8425274	64	-8.477000237	-91.91400146
15 May 2012 11:25:5...	45.757...	4.842528	64	-8.206999779	-91.31600189
15 May 2012 11:25:5...	45.757...	4.842528	64	-8.206999779	-91.75399978
15 May 2012 11:25:5...	45.757...	4.8425287	64	-7.852000237	-91.69499969
15 May 2012 11:25:5...	45.757...	4.8425287	64	-7.852000237	-91.11699677
15 May 2012 11:25:5...	45.757...	4.84252...	64	-7.156000137	-89.75
15 May 2012 11:25:5...	45.757...	4.84253...	64	-7.156000137	-91.14099884
15 May 2012 11:25:5...	45.757...	4.84253...	64	-7.000000187	-90.91000366

Generate Google Earth Files ☒ Generate MapInfo Files ☒ Export: Data Spatial Binned ☐

Drive Test 1st File: Exp_F2_Agileto.csv

Cancel OK

The following mandatory columns correspondence between the standard Agileto inputs and the columns from the Drive Test measurements file should be provided:

- **GPS Latitude WGS84** (Ex: **Latitude** into the above example);
- **GPS Longitude WGS84** (Ex: **Longitude** into the above example);
- **Time Stamp** (Ex: **Time** into the above example);
- **Parameter Selected** (Ex: **TOP 1 CPICH Ec/No** into the above example);

Usually, for the Drive Test Analysis case it is not selected the **Spatial binning** option (like it is recommended to do for the Drive Test Optimisation case) but if this option is selected then the following parameter should be provided, too:

- **Spatial bin size [m]** (Ex: **10** into the above example);

The field called “**Parameter Name**” is already data-filled by the toll with the appropriate string based on the value selected into the field “**Parameter Selected**” but it may be changed manually by the user with any desired string (Ex: **TOP_1_EcNo** into the above example).

Observation:

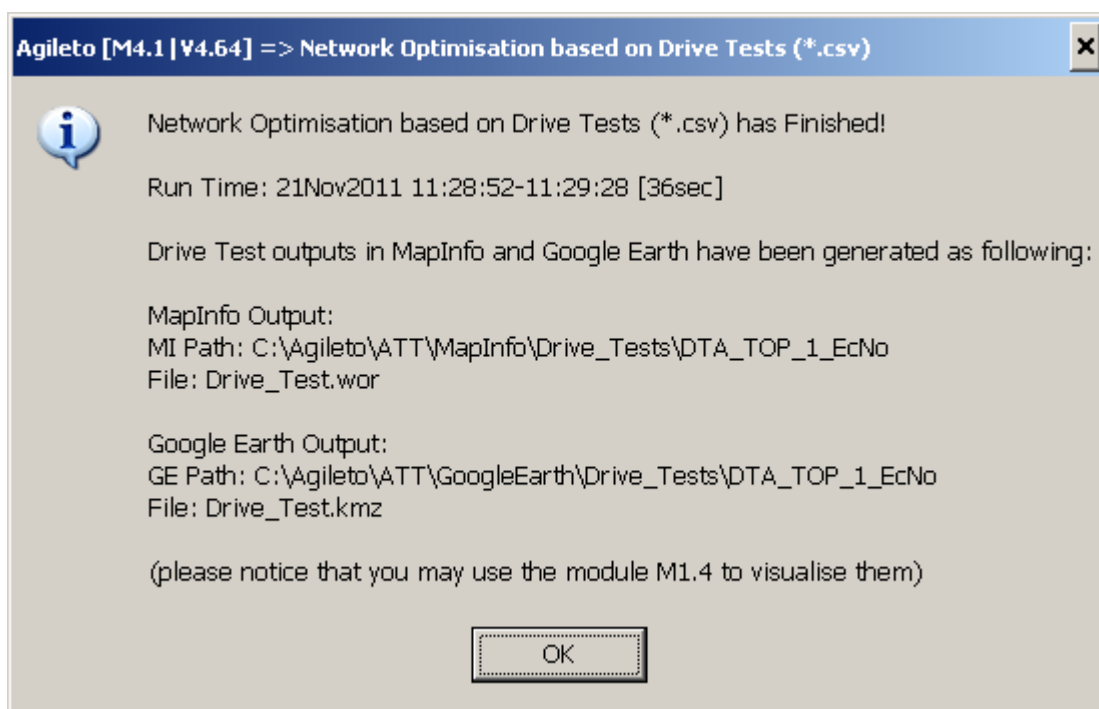
The string that will be accepted into the field corresponding to “**Parameter Name**” will be the string (**TOP_1_EcNo**) which will be the reference for this Drive Test Analysis [it will be the name of the output folder(s) generated by the tool having as prefix the string “**DTA_**” standing for **Drive Test Analysis** (Ex: **DTA_TOP_1_EcNo**)]. This string will be visible as well into the associated Google Earth representations as per it will be presented into the further screenshots.

The last inputs which should be provided by the user are the **Legend Parameter values** which consist into the definition of the following:

- **Five (5) thresholds** corresponding to six (6) Legend colors (ranges);
- The way how the **Legend** colors are going to be associated to their correlated thresholds (**ascending** or **descending**);

Press the OK button when finishing providing all the required (above mentioned) inputs.

When the module completes it will display a message like below (mentioning the MapInfo and Google Earth paths locations where the dedicated files have been generated/saved).

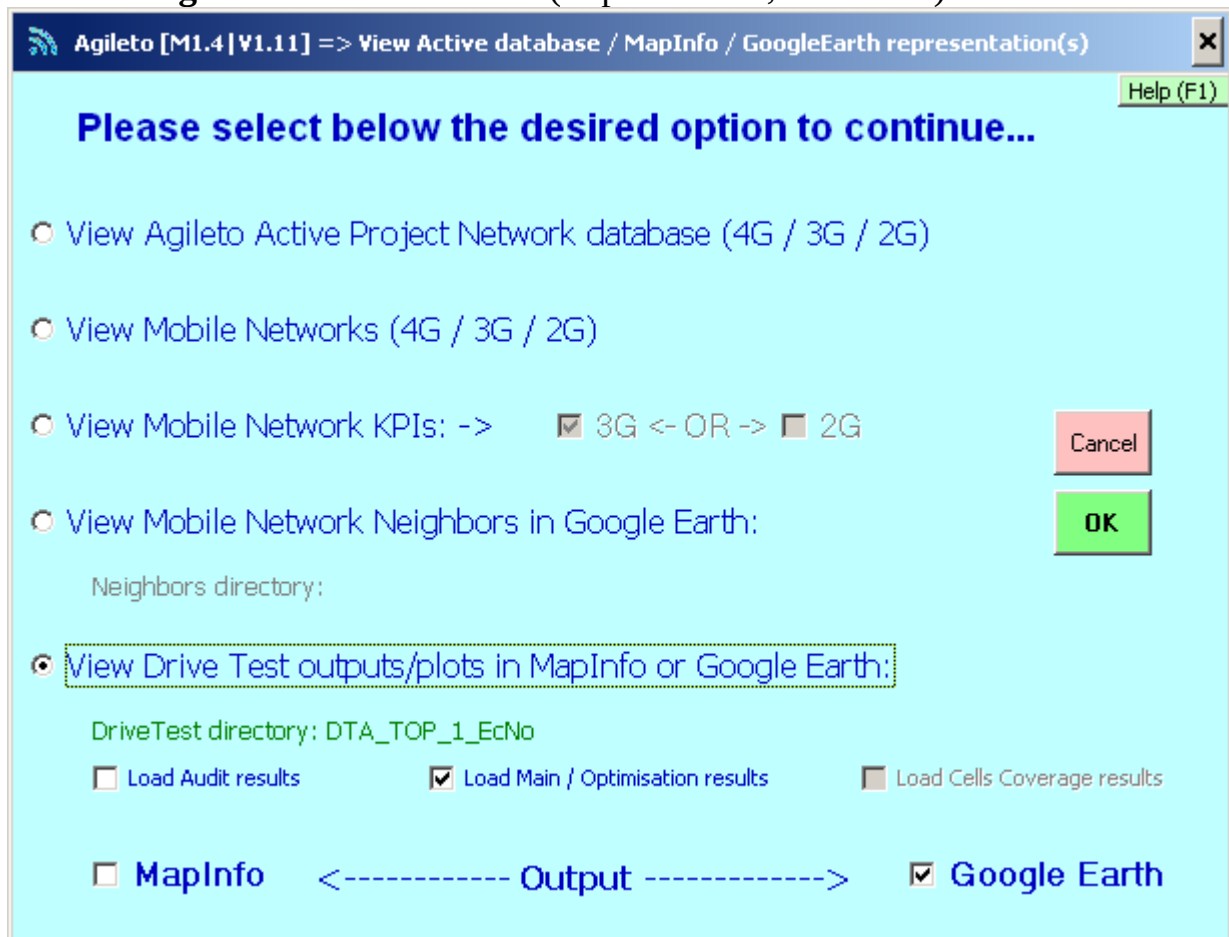


It is to remark the following:

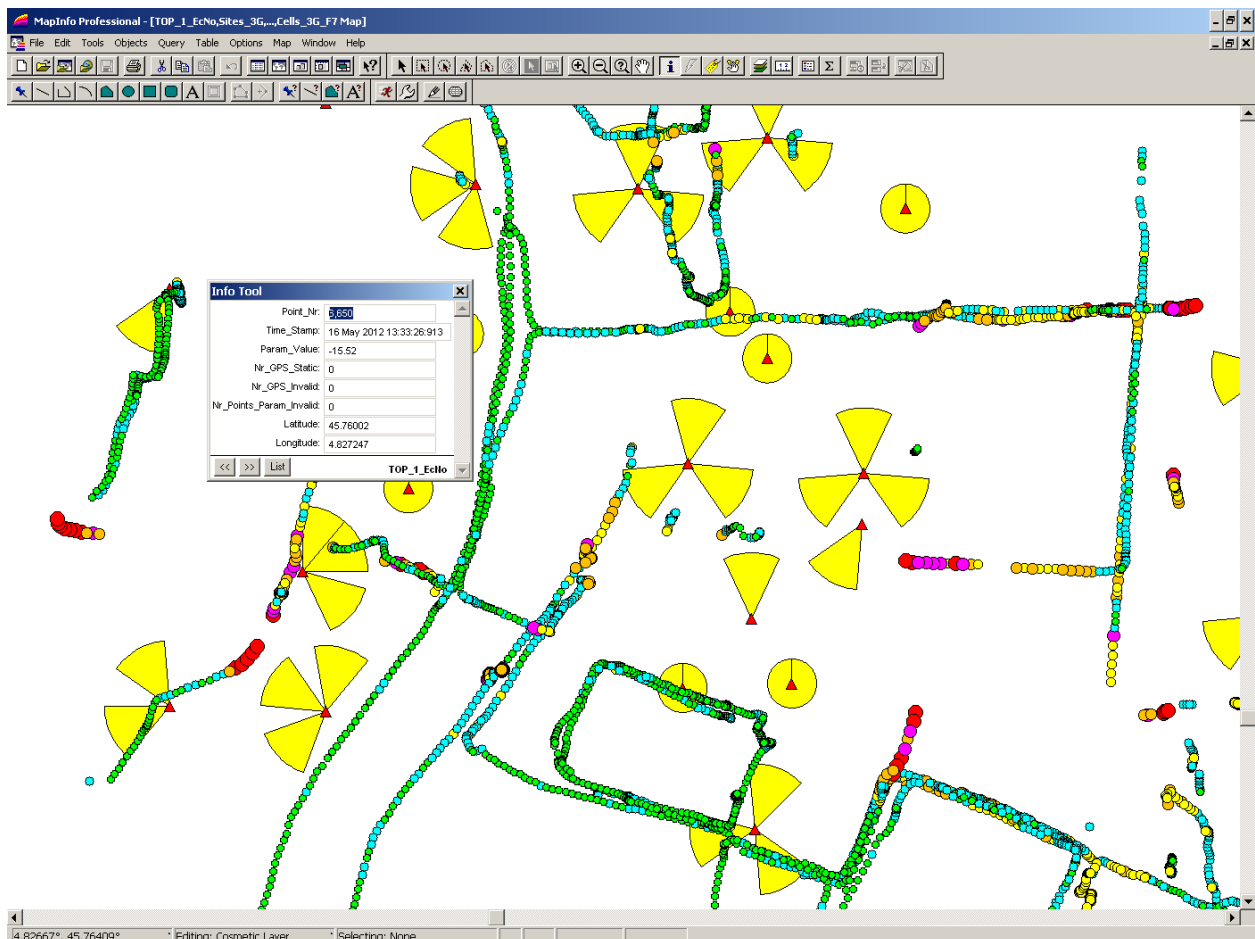
- The directories **DTA_TOP_1_EcNo** (the directory string name starts always with **DTA_** followed by the chosen **Parameter Name**) are created automatically by Agileto under the active project standard MapInfo & Google Earth path locations, as per indicated above;
- The name(s) of the output file(s) generated for **MapInfo** & **Google Earth** are always standard (**Drive_Test.wor** / **Drive_Test.kmz**) and they may be open manually too (in case they are distributed to the third person who does not have already installed Agileto on his/her PC);
- Under **Google Earth** path there is generated another dedicated file named **Drive_Test-Audit.kmz** where it may be seen the performance of the drive test, meaning the points reported with issues during the drive test, like:
 - **GPS Invalid** (no data received from GPS -> this case the point will be represented with the GPS coordinates belonging to the previous valid point);

- **GPS Static** (no mobility was detected, that means the drive test VAN remained on the same static position);
- **Parameter Invalid** (no information was recorded for the Parameter selected on that point, that means at that specific time stamp).

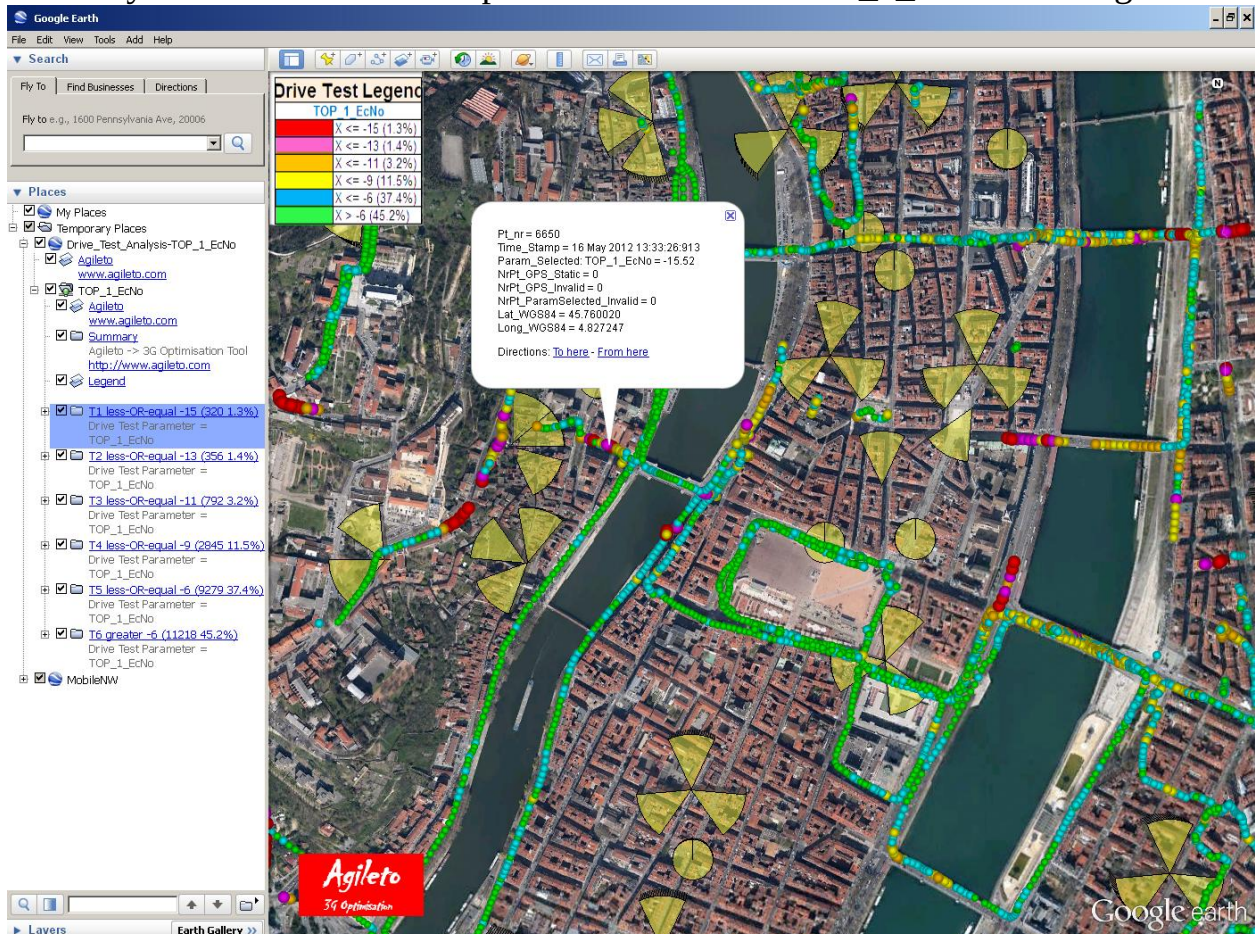
You may use as well the module **M1.4** in order to visualize the results into **MapInfo** and/or **Google Earth** environments (as per desired, see below).



See below the example for the representation of the selected /desired parameter **Top_1_EcNo** in MapInfo:

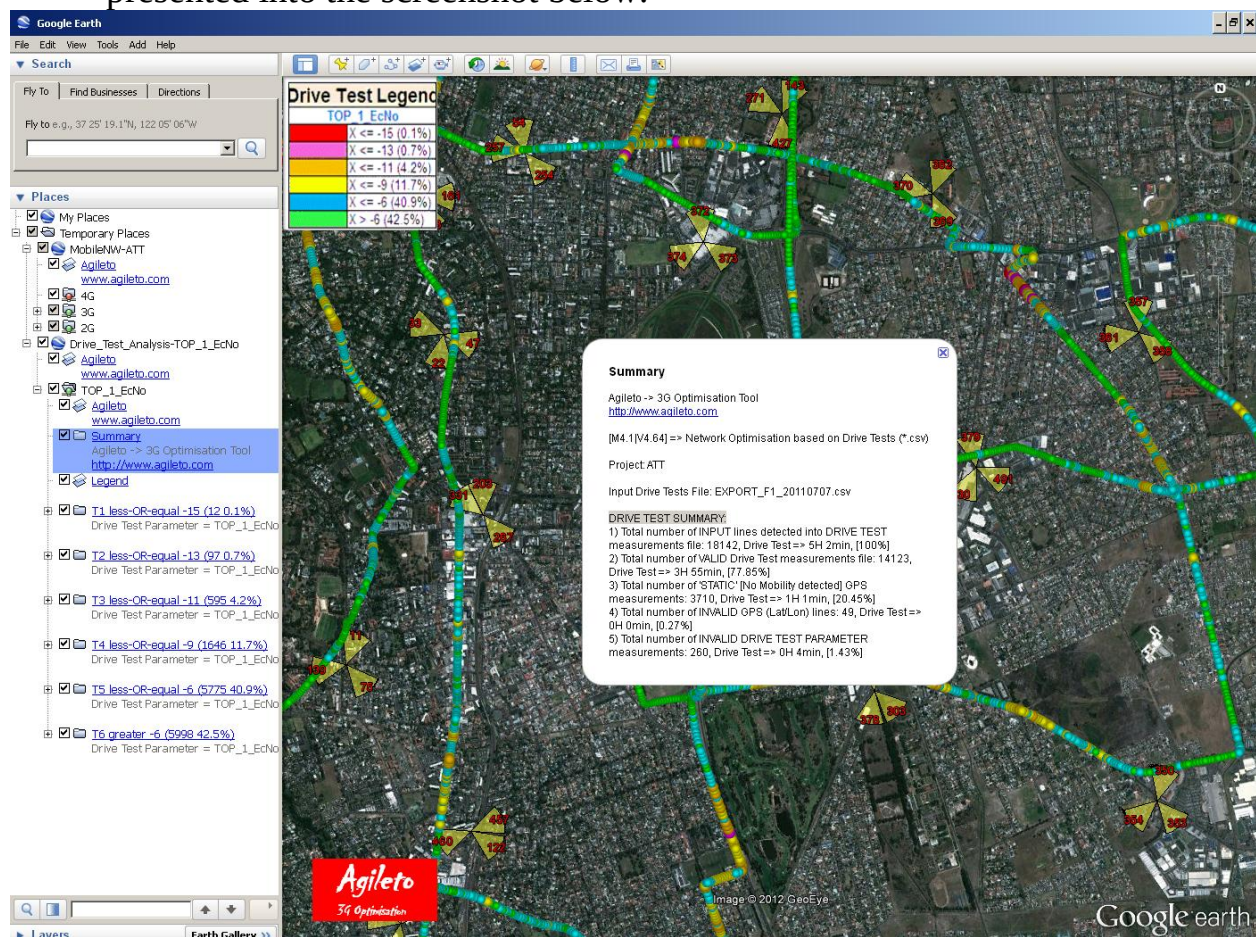


You may see below the same representation for the **TOP_1_EcNo** in Google Earth:



You may notify the following advantages / features when visualizing the results into Google Earth (GE):

- There is a **Drive Test Legend** displayed on the top left area associated to the Parameter selected (Ex: **TOP_1_EcNo**) in line with the thresholds selected by the user in advance;
- From **GE left panel** you may select to display at one time all the drive test points or only those which fall into one/more of the **6 ranges** (T1 to T6) corresponding to the 5 thresholds provided initially as inputs;
- On **GE left panel** it is presented the **absolute number of points** belonging to each of the 6 ranges (Ex: **320/356/792/2845/9279/11218**);
- On **GE left panel** as well as into the **Drive Test Legend** it is presented the **relative percentage** of the number of points belonging to each of the 6 ranges comparing with the total number of points detected into the whole drive test (Ex: **1.3%/1.4%/3.2%/11.5%/37.4%/45.2%**);
- On **GE left panel** there is a **Summary** folder and when the user press on it with the mouse, then GE will display into an info balloon the summary related to the Drive Test Performance as per already mentioned initially and it is presented into the screenshot below.



Conclusion:

The Drive Test Parameter selected and presented into the previous examples related to this option (Drive Test Analysis) was the **TOP_1_EcNo** but any other drive test parameter exported from the general drive test file (Ex: **RSCP**, **Throughput**, **VAN speed**, **Voice MOS**, etc) may be mapped into MapInfo and Google Earth

environments following the same principle. It will be necessary just to choose as inputs the right thresholds (ranges) values and the appropriate Legend (ascending/descending) options in line with the parameter selected (Ex: for the **throughput** you should select the **descending** option [lowest values -> red points while highest values -> green points], while for the **VAN speed** you should select the **ascending** option [lowest values -> green points while highest values -> red points]).

B) Drive Test Optimisation

The purpose of this option (Drive Test Optimisation) is to provide the Network optimization actions (with focus on neighbors and pilot pollution/overshooters) necessary to be performed into the 3G and 2G mobile networks based on the Drive Test measurements data. The target of Agileto is to get automatically (without important human manual intervention) all the optimization tasks and recommendations by using intelligent SON [Self Optimized Network] principles starting from the data contained into the Drive Test measurements file(s).

Which data to be used: the **scanner** or **mobile** drive tests measurements data ?!

First of all we would like to remind that the **Drive Test measurements file** should contains the **Top_1 to Top_X** best servers (detected into the 3G and/or 2G mobile networks) according with the content and format as detailed into the Annex named [“Drive Tests measurements \(scanner/mobile\) file”](#).

In order to provide a fast answer to the question **“which device data to be used: scanner or mobile ?”** we would recommend to use always the scanner measurements data if they are available, due to their highest performance in sensitivity, coverage, independence against mobile network neighbors declarations and more general capabilities compared with the mobile(s) drive tests measurements data.

However, due to the special **“Spatial binning”** option provided by Agileto in post-processing the input Drive Tests measurements data, the mobile drive tests measurement data may be provided as input too, as far as the missing neighbors declarations may be detected and compensated by the aggregations performed during the post-processing data in line with the **“Spatial binning”** method.

Effectively, by using the **“Spatial binning”** method, all the signals detected inside each of the **“basic squares”** having the bin size imposed initially (Ex: 10m) will be aggregated (averaged all the samples from the same signal) and ultimately Agileto will perform the sorting in descending order (based on their signal strengths) of all of signals available on each **“basic square”**. This way Agileto will (re)generate the Top_1 to Top_X signals in descending order for each point of the drive test corresponding to an unique **“basic square”** having the desired bin size. These results (spatial binned) will be exported into *.csv files if the option **“Export Data Spatial Binned”** is selected (see an example on the screenshot below).

Up to the number and the format of the Drive Test measurements input files, there may be four (4) types of Drive Test Optimisation cases, as following:

- **Case: 1** **3G-3G IntraFrequency;**
- **Case: 2** **3G-3G InterFrequency;**
- **Case: 3** **3G-2G InterRAT(GSM);**
- **Case: 4** **2G-2G IntraGSM.**

It may be possible to use only partially the data contained into the Drive Test measurements file(s) and in this situation one initial case may be transformed into another one (Ex: **Case 3** [3G-2G InterRAT] may be transformed into the **Case 1** [3G-3G IntraFrequency] if a specific option is selected, like it will be presented further).

Please see below the main “Drive Test Optimisation” form when two (2) Drive Tests measurements files are provided as inputs generating the **Case 3** [3G-2G InterRAT(GSM)]:

Agileto [M4.1 | V4.64] => Network Optimisation based on Drive Tests (*.csv)

Please select below the desired option and its associated parameters as appropriate

Drive Test Analysis **Drive Test Optimisation** Preview of the Drive Test data file [1]: ☒ DT 1st File ☐ DT 2nd File

GPS Latitude WGS84 ----> Latitude
GPS Longitude WGS84 --> Longitude
Time Stamp ----> Time
Spatial bin size [m] ----> 10 ☒ Perform Spatial Binning

Case: 3
3G -> 2G
[InterRAT(GSM)]

Total Frequency Layers: 4
F1= 10639 [2127.8MHz]
F2= 10664 [2132.8MHz]
F3= 10688 [2137.6MHz]
F7= 2950 [590MHz]

☐ Perform only IntraGSM [2G-2G] analysis
☐ Select only 3G-3G Intra-Frequency -> case [1]
☐ Neighbors analysis will be triggered by RSCP and NOT by EcNo values

EcNoMin [dB] = -20 3G Frq Layer = [Source] 1
RSCPMIn [dBm] = -115

Active Set Delta [dB] (trigger by EcNo) = 3 nrBS [Source] = 6
Monitor Delta [dB] (trigger by EcNo) = 8 nrBS [Target] = 6
Minimum weight [%] = 1.01
Neighbors contribution

RSSIMin [dBm] = -100 Top X = (To be represented) 1
☒ GE neighbors lines have variable widths (up to nr of occurrences) Radius [Km] = (Reference 3G F1) 0.1
☒ Display into GE movie "ActiveSet_RePlay" the summary info for each point

Time	Latitude	Longitude	TOP 1 SC	TOP 1 CPMCH Ec/No	TOP 1 CPMCH RSCP
15 May 2012 11:25:3...	45.75728...	4.84249...	64	-6.992000103	-92.00800323
15 May 2012 11:25:3...	45.75728...	4.84249...	64	-6.745999813	-90.88700104
15 May 2012 11:25:3...	45.75728...	4.84249...	64	-6.914000034	-91.02300262
15 May 2012 11:25:3...	45.75728...	4.84250...	64	-6.313000202	-90.53099823
15 May 2012 11:25:3...	45.75728...	4.84250...	64	-7.362999916	-91.66000366
15 May 2012 11:25:3...	45.75728...	4.84250...	64	-6.234000206	-87.85900116
15 May 2012 11:25:4...	45.75728...	4.84250...	64	-6.477000237	-89.35199738
15 May 2012 11:25:4...	45.75729...	4.8425072	64	-6.977000237	-89.61699677
15 May 2012 11:25:4...	45.75729...	4.8425072	64	-8.871000029	-93.08999634
15 May 2012 11:25:4...	45.75729...	4.84250...	64	-9.758000374	-94.08599854
15 May 2012 11:25:4...	45.75729...	4.84250...	64	-7.977000237	-92.43000031
15 May 2012 11:25:4...	45.75729...	4.84250...	64	-7.070000172	-91.30500031
15 May 2012 11:25:4...	45.75729...	4.84251...	64	-6.664000034	-91.06999969
15 May 2012 11:25:4...	45.75730...	4.8425119	64	-6.570000172	-89.66400146
15 May 2012 11:25:4...	45.75730...	4.8425119	64	-6.507999897	-89.58599854
15 May 2012 11:25:4...	45.75730...	4.84251...	64	-6.054999828	-88.86699677
15 May 2012 11:25:4...	45.75730...	4.84251...	64	-6.176000118	-89.11299896
15 May 2012 11:25:4...	45.75730...	4.84251...	64	-6.565999985	-88.48799896
15 May 2012 11:25:4...	45.75731...	4.84251...	64	-6.159999847	-88.44100189
15 May 2012 11:25:4...	45.75731...	4.84251...	64	-7.176000118	-89.98799896
15 May 2012 11:25:4...	45.75731...	4.84251...	64	-6.776999995	-88.87100022
15 May 2012 11:25:5...	45.75732...	4.84251...	64	-6.742000103	-89.21099854
15 May 2012 11:25:5...	45.75732...	4.84251...	64	-6.602000237	-88.91400146
15 May 2012 11:25:5...	45.7573285	4.84251...	64	-6.120999813	-89.16799927
15 May 2012 11:25:5...	45.75733...	4.8425182	64	-6.065999985	-89.45700073
15 May 2012 11:25:5...	45.75733...	4.8425182	64	-6.320000172	-88.97699738
15 May 2012 11:25:5...	45.75734...	4.8425274	64	-6.625	-90.06300354
15 May 2012 11:25:5...	45.75734...	4.842528	64	-6.179999828	-89.28900146
15 May 2012 11:25:5...	45.75734...	4.842528	64	-5.198999882	-88.74600022
15 May 2012 11:25:5...	45.75734...	4.8425287	64	-5.609000206	-89.45300233
15 May 2012 11:25:5...	45.75734...	4.8425287	64	-5.519999981	-88.78500366
15 May 2012 11:25:5...	45.75735...	4.84252...	64	-5.926000118	-88.51999664
15 May 2012 11:25:5...	45.75735...	4.84253...	64	-6.995999813	-90.98000336
15 May 2012 11:25:5...	45.75735...	4.84253...	64	-6.737999916	-90.14499664

☒ Generate Google Earth files ☒ Generate MapInfo files ☒ Export Data Spatial Binned

Drive Test 1st File: Scanner_3G_F1.csv
Drive Test 2nd File: Scanner_2G_TOP6.csv

Cancel OK

You will remark that there is a set of the same common inputs like they were already presented for the case of Drive Test Analysis, as following:

- **GPS Latitude WGS84** (Ex: **Latitude** into the above example);
- **GPS Longitude WGS84** (Ex: **Longitude** into the above example);
- **Time Stamp** (Ex: **Time** into the above example);
- **Spatial bin size [m]** (Ex: **10** into the above example);

Observations:

a) In case that two (2) Drive Test measurements files are provided as input then the option “**Perform Spatial Binning**” is selected by default in order to allow the geographically superposition between the type of the signals detected into each Drive Test measurements file [the drive tests corresponding to each file may take place even on different days and the final results will not be altered (!)].

b) Even when a single Drive Test measurements file is provided as input, we recommend still keeping selecting the option “**Perform Spatial Binning**” in order to get the best performance. This action will lead even to better optimization results as far as the action of passing many times with the drive test VAN on the same routes will just increase the precision of the signals detected into that area (aggregation is performed by average).

It may be seen into the screenshot below, that the **Spatial bin size [m]** may be selected from a discret number of predefined values or it may be inserted manually as desired. On the right side it is presented the “Preview” of the 1st Drive Test file.

Please select below the desired option and its associated parameters as appropriate

☐ Drive Test Analysis ☒ Drive Test Optimisation

Preview of the Drive Test data file [1]: ☒ DT 1st File ☐ DT 2nd File

GPS Latitude WGS84 ----> Latitude

GPS Longitude WGS84 -> Longitude

Time Stamp ----> Time

Spatial bin size [m] ----> 10 ☒ Perform Spatial Binning

Drive Test Optimisation

Case: 3

3G -> 2G [InterRAT(GSM)]

☐ Perform only IntraGSM [2G-2G] analysis

☐ Select only 3G-3G Intra-Frequency -> case [1]

☐ Neighbors analysis will be triggered by RSCP and NOT by EcNo values

EcNoMin [dB] = -20 3G Freq Layer = 1 [Source]

RSCPMIn [dBm] = -115

Active Set Delta [dB] (trigger by EcNo) = 3 nrBS [Source] = 6 nrBS [Target] = 6

Monitor Delta [dB] (trigger by EcNo) = 8 Minimum weight [%] = 1.01 Neighbors contribution

RSSIMin [dBm] = -100 (GSM) Top X = 1 (To be represented)

☒ GE neighbors lines have variable widths (up to nr of occurrences) Radius [Km] = 0.1 (Reference 3G F1)

☒ Display into GE movie "ActiveSet_RePlay" the summary info for each point

TOP 1 CPICH RSCP	TOP 2 SC	TOP 2 CPICH Ec/No	TOP 2 CPICH RSCP	TOP 3 SC	TOP 3 CPICH Ec/No
-92.00800323	104	-13.33199978	-98.34799957	136	-14.8520
-90.88700104	104	-13.28499985	-97.4260025	136	-16.2239
-91.02300262	104	-14.31999969	-98.43000031	136	-19.9060
-90.53099823	104	-12.53100014	-96.75	136	-20.8090
-91.66000366	104	-11.48799992	-95.78500366	136	-20.3239
-87.85900116	104	-16.56599998	-98.19100189	136	-17.5119
-89.35199738	104	-15.31999969	-98.19499969	136	-19.6410
-89.61699677	104	-14.69900036	-97.33999634	136	-19.4610
-93.08999634	104	-14.85200024	-99.06999969	136	-15.8090
-94.08599854	217	-14.71899986	-99.04699707	136	-15.7889
-92.43000031	104	-14.29699993	-98.75	217	-16.2970
-91.30500031	104	-16.43000031	-100.6640015	136	-16.8829
-91.06999969	104	-17.65999985	-102.0660019	136	-18.4379
-89.66400146	104	-17.12100029	-100.2149963	136	-21.0389
-89.58599854	104	-18.48800087	-101.5660019	136	-18.5939
-88.86699677	136	-18.54700089	-101.3590012	104	-19.9139
-89.11299896	136	-18.83200073	-101.7699966	104	-19.8159
-88.48799896	104	-19.76600075	-101.6880035	136	-20.2579
-88.44100189	104	-22.48399925	-104.7659988	217	-22.9529
-89.98799896	104	-21.26199913	-104.0739975	136	-22.3479
-88.8710022	104	-21.59399986	-103.6880035	136	-25.1989
-89.21099854	104	-21.59399986	-104.0630035	136	-21.6909
-88.91400146	104	-17.4489994	-99.76200104	136	-19.9139
-89.16799927	104	-13.07800007	-96.125	136	-18.2460
-89.45700073	104	-13.43799973	-96.82800293	136	-16.9449
-88.97699738	104	-13.67199993	-96.32800293	136	-18.7579
-90.06300354	104	-14.95300007	-98.39099884	136	-15.1450
-89.28900146	104	-16.03899956	-99.14800262	136	-16.1019
-88.7460022	136	-17.47999954	-101.0270004	104	-18.2339
-88.45300293	136	-16.02300072	-99.86699677	104	-16.9729
-88.78500366	104	-18.81299973	-102.0780029	136	-19.2299
-88.51999664	104	-19.35899925	-101.9530029	136	-19.7770
-90.98000336	136	-13.46500015	-97.4489975	104	-18.8199
-90.14499664	136	-12.55099964	-96.45700073	104	-19.6019

☒ Generate Google Earth files ☒ Generate MapInfo files ☒ Export Data Spatial Binned

Drive Test 1st File: Scanner_3G_F1.csv

Drive Test 2nd File: Scanner_2G_TOP6.csv

Cancel OK

If the “DT 2nd File” option is selected (on top right option) then the preview of the data will present now the content of the second Drive Test file (see the next screenshot, below). Please do not forget to provide the right (3) columns correspondence for the 2nd Drive Test file on the following inputs (otherwise this missing info it will be signalized when pressing the OK button).

- **GPS Latitude WGS84** (Ex: **Lat** into the below example);
- **GPS Longitude WGS84** (Ex: **Lon** into the below example);
- **Time Stamp** (Ex: **TIME_STAMP** into the below example).

Agileto [M4.1 [V4.64] => Network Optimisation based on Drive Tests (*.csv)]

Please select below the desired option and its associated parameters as appropriate

☐ Drive Test Analysis ☒ Drive Test Optimisation

Preview of the Drive Test data file [2]: ☐ DT 1st File ☒ DT 2nd File

GPS Latitude WGS84 ---> Lat

GPS Longitude WGS84 ---> Lon

Time Stamp ---> TIME_STAMP

Spatial bin size [m] ---> 10 ☒ Perform Spatial Binning

Drive Test Optimisation

Case: 3

Total Frequency Layers: 4

F1= 10639 [2127.8MHz]
F2= 10664 [2132.8MHz]
F3= 10688 [2137.6MHz]
F7= 2950 [590MHz]

☐ Perform only IntraGSM [2G-2G] analysis

☐ Select only 3G-3G Intra-Frequency -> case [1]

☐ Neighbors analysis will be triggered by RSCP and NOT by EcNo values

EcNoMin [dB] = -20 3G Frq Layer = [Source] 1

RSCPMIn [dBm] = -115

Active Set Delta [dB] (trigger by EcNo) 3 nrBS [Source] = 6
nrBS [Target] = 6

Monitor Delta [dB] (trigger by EcNo) 8 Minimum weight [%] 1.01
Neighbors contribution

RSSIMin [dBm] = -100 Top X = 1 (To be represented)

☒ GE neighbors lines have variable widths (up to nr of occurrences)

☒ Display into GE movie "ActiveSet_RePlay" the summary info for each point

Radius [Km] = 0.1

☒ Generate Google Earth Files ☒ Generate MapInfo Files ☒ Export Data Spatial Binned

Drive Test 1st File: Scanner_3G_F1.csv
Drive Test 2nd File: Scanner_2G_TOP6.csv

Cancel OK

TIME_STAMP	Lon	Lat	Top 1 ARFCN	Top 1 RSSI	Top 1 BSIC	Top 2 ARFCN
21-Jul-2012 10:45:30	7.42905	43.7414...	114	-43.1	6	109
21-Jul-2012 10:45:33	7.42906	43.7414...	109	-43.5		114
21-Jul-2012 10:45:35	7.42906	43.7413...	114	-45.8	6	109
21-Jul-2012 10:45:38	7.42908	43.7412...	109	-42.2		75
21-Jul-2012 10:45:41	7.42898	43.74118	109	-38.8		114
21-Jul-2012 10:45:44	7.42893	43.74115	114	-42.5	6	35
21-Jul-2012 10:45:46	7.42888	43.7411...	114	-44.4	6	35
21-Jul-2012 10:45:49	7.42883	43.74107	114	-41.8	6	109
21-Jul-2012 10:45:51	7.42882	43.7410...	35	-47.8	1	20
21-Jul-2012 10:45:54	7.42876	43.7409...	35	-52.5	1	20
21-Jul-2012 10:45:56	7.42869	43.7409...	35	-53.7	1	90
21-Jul-2012 10:45:59	7.42859	43.7408...	81	-53.1		114
21-Jul-2012 10:46:01	7.42853	43.7407...	90	-54.2		35
21-Jul-2012 10:46:04	7.42844	43.7406...	35	-57.2	1	90
21-Jul-2012 10:46:07	7.42832	43.7405...	72	-56.8	3	98
21-Jul-2012 10:46:09	7.42822	43.74052	90	-61.1		114
21-Jul-2012 10:46:12	7.42811	43.7404...	72	-53.8	3	120
21-Jul-2012 10:46:14	7.42807	43.7404...	98	-60.5		65
21-Jul-2012 10:46:17	7.42804	43.7403...	72	-56.1	3	91
21-Jul-2012 10:46:19	7.42803	43.7403...	72	-53.6	3	85
21-Jul-2012 10:46:22	7.42799	43.74036	72	-53	3	120
21-Jul-2012 10:46:25	7.42794	43.7403...	72	-58	3	91
21-Jul-2012 10:46:27	7.42792	43.7402...	72	-54.9	3	78
21-Jul-2012 10:46:29	7.42791	43.7402...	72	-57.5	3	35
21-Jul-2012 10:46:32	7.42789	43.74028	35	-58.1	4	116
21-Jul-2012 10:46:35	7.42783	43.7402...	78	-59.8		85
21-Jul-2012 10:46:37	7.42777	43.7402...	91	-61	6	35
21-Jul-2012 10:46:39	7.42768	43.7402...	7	-57.5	2	72
21-Jul-2012 10:46:42	7.42753	43.74041	114	-63	6	40
21-Jul-2012 10:46:45	7.42729	43.74052	98	-66.7		35
21-Jul-2012 10:46:47	7.42717	43.7405...	35	-59.1	4	120
21-Jul-2012 10:46:50	7.42715	43.7406...	72	-52.8	3	91
21-Jul-2012 10:46:53	7.42732	43.7408...	72	-60.6	3	35
21-Jul-2012 10:46:56	7.42751	43.7411...	98	-56		35

As already mentioned in advance, the **Case 1** may be selected by choosing the option “Select only 3G-3G Intra-Frequency -> case [1]” -> see the example below:

Agileto [M4.1 [V4.64] => Network Optimisation based on Drive Tests (*.csv)]

Please select below the desired option and its associated parameters as appropriate

☐ Drive Test Analysis ☒ Drive Test Optimisation

Preview of the Drive Test data file [1]: ☒ DT 1st File ☐ DT 2nd File

GPS Latitude WGS84 ---> Latitude

GPS Longitude WGS84 ---> Longitude

Time Stamp ---> Time

Spatial bin size [m] ---> 10 ☒ Perform Spatial Binning

Drive Test Optimisation

Case: 1

Total Frequency Layers: 4

F1= 10639 [2127.8MHz]
F2= 10664 [2132.8MHz]
F3= 10688 [2137.6MHz]
F7= 2950 [590MHz]

☐ Perform only IntraGSM [2G-2G] analysis

☒ Select only 3G-3G Intra-Frequency -> case [1]

☐ Neighbors analysis will be triggered by RSCP and NOT by EcNo values

EcNoMin [dB] = -20 3G Frq Layer = [Source] 1

RSCPMIn [dBm] = -115

Active Set Delta [dB] (trigger by EcNo) 3 nrBS [Source] = 6
nrBS [Target] = 6

Monitor Delta [dB] (trigger by EcNo) 8 Minimum weight [%] 1.01
Neighbors contribution

RSSIMin [dBm] = -100 Top X = 1 (To be represented)

☒ GE neighbors lines have variable widths (up to nr of occurrences)

☒ Display into GE movie "ActiveSet_RePlay" the summary info for each point

Radius [Km] = 0.1

☒ Generate Google Earth Files ☒ Generate MapInfo Files ☒ Export Data Spatial Binned

Drive Test 1st File: Scanner_3G_F1.csv
Drive Test 2nd File: Scanner_2G_TOP6.csv

Cancel OK

Time	Latitude	Longitude	TOP 1 SC	TOP 1 CPICH Ec/No	TOP 1 CPICH RSCP
15 May 2012 11:25:3...	45.75728...	4.84249...	64	-6.992000103	-92.00800323
15 May 2012 11:25:3...	45.75728...	4.84249...	64	-6.745999813	-90.88700104
15 May 2012 11:25:3...	45.75728...	4.84249...	64	-6.914000034	-91.02300262
15 May 2012 11:25:3...	45.75728...	4.84250...	64	-6.313000202	-90.53099823
15 May 2012 11:25:3...	45.75728...	4.84250...	64	-7.362999916	-91.66000366
15 May 2012 11:25:3...	45.75728...	4.84250...	64	-6.234000206	-87.85900116
15 May 2012 11:25:4...	45.75728...	4.84250...	64	-6.477000237	-89.35199738
15 May 2012 11:25:4...	45.75729...	4.8425072	64	-6.977000237	-89.61699677
15 May 2012 11:25:4...	45.75729...	4.8425072	64	-8.87100029	-93.08999634
15 May 2012 11:25:4...	45.75729...	4.84250...	64	-9.758000374	-94.08599854
15 May 2012 11:25:4...	45.75729...	4.84250...	64	-7.977000237	-92.43000031
15 May 2012 11:25:4...	45.75729...	4.84250...	64	-7.070000172	-91.30500031
15 May 2012 11:25:4...	45.75729...	4.84251...	64	-6.664000034	-91.06399969
15 May 2012 11:25:4...	45.75730...	4.8425119	64	-6.570000172	-89.66400146
15 May 2012 11:25:4...	45.75730...	4.8425119	64	-6.507999897	-89.58599854
15 May 2012 11:25:4...	45.75730...	4.84251...	64	-6.054999828	-88.86699677
15 May 2012 11:25:4...	45.75730...	4.84251...	64	-6.176000118	-89.11299896
15 May 2012 11:25:4...	45.75730...	4.84251...	64	-6.565999885	-88.48799896
15 May 2012 11:25:4...	45.75731...	4.84251...	64	-6.159999847	-88.44100189
15 May 2012 11:25:4...	45.75731...	4.84251...	64	-7.176000118	-89.38799896
15 May 2012 11:25:4...	45.75731...	4.84251...	64	-6.77699995	-88.87100022
15 May 2012 11:25:5...	45.75732...	4.84251...	64	-6.742000103	-89.21099854
15 May 2012 11:25:5...	45.75732...	4.84251...	64	-6.602000237	-88.91400146
15 May 2012 11:25:5...	45.7573285	4.84251...	64	-6.120999813	-89.16799927
15 May 2012 11:25:5...	45.75733...	4.8425182	64	-6.065999985	-89.45700073
15 May 2012 11:25:5...	45.75733...	4.8425182	64	-6.320000172	-88.97699738
15 May 2012 11:25:5...	45.75734...	4.8425274	64	-6.625	-90.06300354
15 May 2012 11:25:5...	45.75734...	4.842528	64	-6.179999828	-89.28900146
15 May 2012 11:25:5...	45.75734...	4.842528	64	-5.198999882	-88.74600022
15 May 2012 11:25:5...	45.75734...	4.8425287	64	-5.609000206	-89.45300293
15 May 2012 11:25:5...	45.75734...	4.8425287	64	-5.519999981	-88.78500366
15 May 2012 11:25:5...	45.75735...	4.84252...	64	-5.926000118	-88.51999864
15 May 2012 11:25:5...	45.75735...	4.84253...	64	-6.995999813	-90.98000336
15 May 2012 11:25:5...	45.75735...	4.84253...	64	-6.729999916	-90.11499654

Similar way, the **Case 4** may be selected by choosing the option “Perform only IntraGSM [2G-2G] analysis” -> see the example below:

Agileto [M4.1 | V4.64] => Network Optimisation based on Drive Tests (*.csv)

Please select below the desired option and its associated parameters as appropriate

☐ Drive Test Analysis ☒ Drive Test Optimisation

Preview of the Drive Test data file [2]: ☐ DT 1st File ☒ DT 2nd File

GPS Latitude WGS84 ----> Lat
GPS Longitude WGS84 --> Lon
Time Stamp ----> TIME_STAMP
Spatial bin size [m] ----> 10 ☒ Perform Spatial Binning

Drive Test Optimisation

Case: 4
2G -> 2G
[IntraGSM(2G-2G)]

Total Frequency Layers: 4
F1= 10639 [2127.8MHz]
F2= 10664 [2132.8MHz]
F3= 10688 [2137.6MHz]
F7= 2950 [590MHz]

☒ Perform only IntraGSM [2G-2G] analysis
☐ Select only 3G-3G Intra-Frequency -> case [1]

Active Set Delta [dB] (trigger by RSSI) = 3
Monitor Delta [dB] (trigger by RSSI) = 8
RSSIMin [dBm] = (GSM) -100
☒ GE neighbors lines have variable widths (up to nr of occurrences)
☒ Display into GE movie "ActiveSet_RePlay" the summary info for each point

nrBS [Source] = 6
Minimum weight [%] = 1.01
Neighbors contribution
Top X = (To be represented) 1
Radius [Km] = 0.1
(Reference 3G F1)

☒ Generate Google Earth Files ☒ Generate MapInfo Files ☒ Export Data Spatial Binned

Drive Test 1st File: Scanner_3G_F1.csv
Drive Test 2nd File: Scanner_2G_TOP6.csv

TIME_STAMP	Lon	Lat	Top 1 ARFCN	Top 1 RSSI	Top 1 BSIC	Top 2 ARFCN
21-Jul-2012 10:45:30	7.42905	43.7414...	114	-43.1	6	109
21-Jul-2012 10:45:33	7.42906	43.7414...	109	-43.5		114
21-Jul-2012 10:45:35	7.42906	43.7413...	114	-45.8	6	109
21-Jul-2012 10:45:38	7.42908	43.7412...	109	-42.2		75
21-Jul-2012 10:45:41	7.42898	43.74118	109	-38.8		114
21-Jul-2012 10:45:44	7.42893	43.74115	114	-42.5	6	35
21-Jul-2012 10:45:46	7.42888	43.7411...	114	-44.4	6	35
21-Jul-2012 10:45:49	7.42883	43.74107	114	-41.8	6	109
21-Jul-2012 10:45:51	7.42882	43.7410...	35	-47.8	1	20
21-Jul-2012 10:45:54	7.42876	43.7409...	35	-52.5	1	20
21-Jul-2012 10:45:56	7.42869	43.7409...	35	-53.7	1	90
21-Jul-2012 10:45:59	7.42859	43.7408...	81	-53.1		114
21-Jul-2012 10:46:01	7.42853	43.7407...	90	-54.2		35
21-Jul-2012 10:46:04	7.42844	43.7406...	35	-57.2	1	90
21-Jul-2012 10:46:07	7.42832	43.7405...	72	-56.8	3	98
21-Jul-2012 10:46:09	7.42822	43.74052	90	-61.1		114
21-Jul-2012 10:46:12	7.42811	43.7404...	72	-53.8	3	120
21-Jul-2012 10:46:14	7.42807	43.7404...	98	-60.5		65
21-Jul-2012 10:46:17	7.42804	43.7403...	72	-56.1	3	91
21-Jul-2012 10:46:19	7.42803	43.7403...	72	-53.6	3	85
21-Jul-2012 10:46:22	7.42799	43.74036	72	-53	3	120
21-Jul-2012 10:46:25	7.42794	43.7403...	72	-58	3	91
21-Jul-2012 10:46:27	7.42792	43.7402...	72	-54.9	3	78
21-Jul-2012 10:46:29	7.42791	43.7402...	72	-57.5	3	35
21-Jul-2012 10:46:32	7.42789	43.74028	35	-58.1	4	116
21-Jul-2012 10:46:35	7.42783	43.7402...	78	-59.8		85
21-Jul-2012 10:46:37	7.42777	43.7402...	91	-61	6	35
21-Jul-2012 10:46:39	7.42768	43.7402...	7	-57.5	2	72
21-Jul-2012 10:46:42	7.42753	43.74041	114	-63	6	40
21-Jul-2012 10:46:45	7.42729	43.74052	98	-66.7		35
21-Jul-2012 10:46:47	7.42717	43.7405...	35	-59.1	4	120
21-Jul-2012 10:46:50	7.42715	43.7406...	72	-52.8	3	91
21-Jul-2012 10:46:53	7.42732	43.7408...	72	-60.6	3	35
21-Jul-2012 10:46:56	7.42751	43.7411...	98	-56		35

Cancel OK

In case that two (2) Drive Test measurements input files are provided related to two 3G frequencies layers, it is considered by default that the “Source” data are related to the 1st Drive Test file (Ex: frequency layer 1) and the “Target” data are related to the 2nd Drive Test file (Ex: frequency layer 2); see the example below:

Agileto [M4.1 | V4.64] => Network Optimisation based on Drive Tests (*.csv)

Please select below the desired option and its associated parameters as appropriate

☐ Drive Test Analysis ☒ Drive Test Optimisation

Preview of the Drive Test data file [1]: ☒ DT 1st File ☐ DT 2nd File

GPS Latitude WGS84 ----> Latitude
GPS Longitude WGS84 --> Longitude
Time Stamp ----> Time
Spatial bin size [m] ----> 10 ☒ Perform Spatial Binning

Drive Test Optimisation

Case: 2
3G -> 3G
[InterFrequency]

Total Frequency Layers: 4
F1= 10639 [2127.8MHz]
F2= 10664 [2132.8MHz]
F3= 10688 [2137.6MHz]
F7= 2950 [590MHz]

☐ Do Reverse [Target -> Source] 3G-3G Inter-Frequency analysis
☐ Select only 3G-3G Intra-Frequency -> case [1]
☐ Neighbors analysis will be triggered by RSCP and NOT by EcNo values

EcNoMin [dB] = -20
RSCPMIn [dBm] = -115
Active Set Delta [dB] (trigger by EcNo) = 3
Monitor Delta [dB] (trigger by EcNo) = 8

3G Frq Layer = [Source] 1
3G Frq Layer = [Target] 2

nrBS [Source] = 6
nrBS [Target] = 6
Minimum weight [%] = 1.01
Neighbors contribution
Top X = (To be represented) 1
Radius [Km] = 0.1
(Reference 3G F1)

☒ GE neighbors lines have variable widths (up to nr of occurrences)
☒ Display into GE movie "ActiveSet_RePlay" the summary info for each point

☒ Generate Google Earth Files ☒ Generate MapInfo Files ☒ Export Data Spatial Binned

Drive Test 1st File: Scanner_3G_F1.csv
Drive Test 2nd File: Scanner_3G_F2.csv

Time	Latitude	Longitude	TOP 1 SC	TOP 1 CPICH Ec/No	TOP 1 CPICH RSCF
15 May 2012 11:25:3...	45.757283...	4.84249...	64	-6.992000103	-92.00800323
15 May 2012 11:25:3...	45.757283...	4.84249...	64	-6.745999813	-90.88700104
15 May 2012 11:25:3...	45.757284...	4.84249...	64	-6.914000034	-91.02200262
15 May 2012 11:25:3...	45.757286...	4.84250...	64	-6.313000202	-90.53099823
15 May 2012 11:25:3...	45.757286...	4.84250...	64	-7.362999916	-91.66000366
15 May 2012 11:25:3...	45.757288...	4.84250...	64	-6.234000206	-87.85900116
15 May 2012 11:25:4...	45.757289...	4.84250...	64	-6.477000237	-89.35199738
15 May 2012 11:25:4...	45.757291...	4.8425072	64	-6.977000237	-89.61699677
15 May 2012 11:25:4...	45.757291...	4.8425072	64	-8.87100029	-93.08999634
15 May 2012 11:25:4...	45.757293...	4.84250...	64	-9.758000374	-94.08599854
15 May 2012 11:25:4...	45.757295...	4.84250...	64	-7.977000237	-92.43000031
15 May 2012 11:25:4...	45.757295...	4.84250...	64	-7.070000172	-91.30500031
15 May 2012 11:25:4...	45.757298...	4.84251...	64	-6.664000034	-91.06999969
15 May 2012 11:25:4...	45.757300...	4.8425119	64	-6.570000172	-89.66400146
15 May 2012 11:25:4...	45.757300...	4.8425119	64	-6.507999897	-89.58599854
15 May 2012 11:25:4...	45.757302...	4.84251...	64	-6.054999828	-88.86699677
15 May 2012 11:25:4...	45.757305...	4.84251...	64	-6.176000118	-89.11299896
15 May 2012 11:25:4...	45.757305...	4.84251...	64	-6.565999985	-88.48799896
15 May 2012 11:25:4...	45.757313...	4.84251...	64	-6.159999847	-88.44100189
15 May 2012 11:25:4...	45.757313...	4.84251...	64	-7.176000118	-89.98799896
15 May 2012 11:25:4...	45.757317...	4.84251...	64	-6.776999995	-88.8710022
15 May 2012 11:25:5...	45.757322...	4.84251...	64	-6.742000103	-89.21099854
15 May 2012 11:25:5...	45.757322...	4.84251...	64	-6.602000237	-88.91400146
15 May 2012 11:25:5...	45.7573285	4.84251...	64	-6.120999813	-89.16799927
15 May 2012 11:25:5...	45.757332...	4.8425182	64	-6.065999985	-89.45700073
15 May 2012 11:25:5...	45.757332...	4.8425182	64	-6.320000172	-88.97699738
15 May 2012 11:25:5...	45.757343...	4.8425274	64	-6.625	-90.06300354
15 May 2012 11:25:5...	45.757346...	4.842528	64	-6.179999828	-89.28900146
15 May 2012 11:25:5...	45.757346...	4.842528	64	-5.198999882	-88.7460022
15 May 2012 11:25:5...	45.757348...	4.8425287	64	-5.609000206	-89.45300293
15 May 2012 11:25:5...	45.757348...	4.8425287	64	-5.519999981	-88.78500366
15 May 2012 11:25:5...	45.757350...	4.84252...	64	-5.926000118	-88.51999664
15 May 2012 11:25:5...	45.757352...	4.84253...	64	-6.995999813	-90.98000336
15 May 2012 11:25:5...	45.757352...	4.84253...	64	-6.237999916	-90.14499664

Cancel OK

If desired, it may be possible to exchange the “Source” with the “Target” data (like the “Source” data are contained into the 2nd Drive Test file and the “Target” data are contained into the 1st Drive Test file) by selecting the option “**Do Reverse [Target -> Source] 3G-3G Inter-Frequency analysis**”; => see the example below:

Please select below the desired option and its associated parameters as appropriate

☐ Drive Test Analysis ☒ Drive Test Optimisation Preview of the Drive Test data file [1]: ☒ DT 1st File ☐ DT 2nd File

GPS Latitude WGS84 ---> Latitude
GPS Longitude WGS84 ---> Longitude
Time Stamp ---> Time
Spatial bin size [m] ---> 10 ☒ Perform Spatial Binning

Drive Test Optimisation

Case: 2
3G -> 3G
[InterFrequency]

Total Frequency Layers: 4
F1= 10639 [2127.8MHz]
F2= 10664 [2132.8MHz]
F3= 10688 [2137.6MHz]
F7= 2950 [590MHz]

☒ Do Reverse [Target -> Source] 3G-3G Inter-Frequency analysis
☐ Select only 3G-3G Intra-Frequency -> case [1]
☐ Neighbors analysis will be triggered by RSCP and NOT by EcNo values

EcNoMin [dBm] = -20 3G Frq Layer = 2
RSCPMIn [dBm] = -115 3G Frq Layer = 1
Active Set Delta [dB] (trigger by EcNo) = 3 nrBS [Source] = 6
Monitor Delta [dB] (trigger by EcNo) = 8 nrBS [Target] = 6
Minimum weight [%] = 1.01
Neighbors contribution
Top X = (To be represented) 1
Radius [Km] = 0.1 (Reference 3G F1)

☒ GE neighbors lines have variable widths (up to nr of occurrences)
☒ Display into GE movie "ActiveSet_RePlay" the summary info for each point

☒ Generate Google Earth files ☒ Generate MapInfo files ☒ Export Data Spatial Binned

Drive Test 1st File: Scanner_3G_F1.csv
Drive Test 2nd File: Scanner_3G_F2.csv

Cancel OK

Time	Latitude	Longitude	TOP 1 SC	TOP 1 CPICH Ec/No	TOP 1 CPICH RSCP
15 May 2012 11:25:3...	45.757283...	4.84243...	64	-6.992000103	-92.00800323
15 May 2012 11:25:3...	45.757283...	4.84243...	64	-6.745999813	-90.88700104
15 May 2012 11:25:3...	45.757284...	4.84243...	64	-6.914000034	-91.02300262
15 May 2012 11:25:3...	45.757286...	4.84250...	64	-6.313000202	-90.53099823
15 May 2012 11:25:3...	45.757286...	4.84250...	64	-7.362999916	-91.66000366
15 May 2012 11:25:3...	45.757288...	4.84250...	64	-6.234000206	-87.85900116
15 May 2012 11:25:4...	45.757289...	4.84250...	64	-6.477000237	-89.35199738
15 May 2012 11:25:4...	45.757291...	4.8425072	64	-6.977000237	-89.61699677
15 May 2012 11:25:4...	45.757291...	4.8425072	64	-8.871000029	-93.08999634
15 May 2012 11:25:4...	45.757293...	4.84250...	64	-9.758000374	-94.08599854
15 May 2012 11:25:4...	45.757295...	4.84250...	64	-7.977000237	-92.43000031
15 May 2012 11:25:4...	45.757295...	4.84250...	64	-7.070000172	-91.30500031
15 May 2012 11:25:4...	45.757298...	4.84251...	64	-6.664000034	-91.06999969
15 May 2012 11:25:4...	45.757300...	4.8425119	64	-6.570000172	-89.66400146
15 May 2012 11:25:4...	45.757300...	4.8425119	64	-6.507999897	-89.58599854
15 May 2012 11:25:4...	45.757302...	4.84251...	64	-6.054999828	-88.86699677
15 May 2012 11:25:4...	45.757305...	4.84251...	64	-6.176000118	-89.11299896
15 May 2012 11:25:4...	45.757305...	4.84251...	64	-6.565999985	-88.48799896
15 May 2012 11:25:4...	45.757313...	4.84251...	64	-6.159999847	-88.44100189
15 May 2012 11:25:4...	45.757313...	4.84251...	64	-7.176000118	-89.98799896
15 May 2012 11:25:4...	45.757317...	4.84251...	64	-6.776999995	-88.8710022
15 May 2012 11:25:5...	45.757322...	4.84251...	64	-6.742000103	-89.21099854
15 May 2012 11:25:5...	45.757322...	4.84251...	64	-6.602000237	-88.91400146
15 May 2012 11:25:5...	45.757325...	4.84251...	64	-6.120999813	-89.16799927
15 May 2012 11:25:5...	45.757332...	4.8425182	64	-6.065999985	-89.45700073
15 May 2012 11:25:5...	45.757332...	4.8425182	64	-6.320000172	-88.97699738
15 May 2012 11:25:5...	45.757343...	4.8425274	64	-6.625	-90.06300354
15 May 2012 11:25:5...	45.757346...	4.842528	64	-6.179999828	-89.28900146
15 May 2012 11:25:5...	45.757346...	4.842528	64	-5.198999882	-88.7460022
15 May 2012 11:25:5...	45.757348...	4.8425287	64	-5.609000206	-89.45300293
15 May 2012 11:25:5...	45.757348...	4.8425287	64	-5.519999981	-88.78500366
15 May 2012 11:25:5...	45.757350...	4.84252...	64	-5.926000118	-88.51999664
15 May 2012 11:25:5...	45.757352...	4.84253...	64	-6.995999813	-90.98000336
15 May 2012 11:25:5...	45.757352...	4.84253...	64	-6.737999916	-90.11499664

Ultimately, if in addition to the previous mentioned selection you select as well the option “**Select only 3G-3G IntraFrequency -> case [1]**” you will get the **Case 1** [3G-3G IntraFrequency] analysis for the data contained into the 2nd Drive Test file corresponding to the frequency layer 2; see the screenshot below for example:

Agileto [M4.1 [V4.64] => Network Optimisation based on Drive Tests (*.csv)

Please select below the desired option and its associated parameters as appropriate

☐ Drive Test Analysis
 ☒ Drive Test Optimisation

Preview of the Drive Test data file [1]: ☒ DT 1st File ☐ DT 2nd File

GPS Latitude WGS84 --> Latitude
 GPS Longitude WGS84 --> Longitude
 Time Stamp --> Time
 Spatial bin size [m] --> 10 ☒ Perform Spatial Binning

Drive Test Optimisation

Case: 1

3G -> 3G
[IntraFrequency]

Total Frequency Layers: 4

F1= 10639 [2127.8MHz]
F2= 10664 [2132.8MHz]
F3= 10688 [2137.6MHz]
F7= 2950 [590MHz]

☒ Do Reverse [Target -> Source] 3G-3G Inter-Frequency analysis
☒ Select only 3G-3G Intra-Frequency -> case [1]
☐ Neighbors analysis will be triggered by RSCP and NOT by EcNo values

EcNoMin [dB] = -20 3G Frq Layer = 2 [Source]

RSCPMIn [dBm] = -115

Active Set Delta [dB] = 3 nrBS [Source] = 6

Monitor Delta [dB] = 8 (trigger by EcNo) Minimum weight [%] = 1.01 Neighbors contribution

Top X = 1 (To be represented)

Radius [Km] = 0.1 (Reference 3G F1)

☒ GE neighbors lines have variable widths (up to nr of occurrences)
☒ Display into GE movie "ActiveSet_RePlay" the summary info for each point

☒ Generate Google Earth Files ☒ Generate MapInfo Files ☒ Export Data Spatial Binned

Drive Test 1st File: Scanner_3G_F1.csv
Drive Test 2nd File: Scanner_3G_F2.csv

Cancel OK

Time	Latitude	Longitude	TOP 1 SC	TOP 1 CPICH Ec/No	TOP 1 CPICH RSCF
15 May 2012 11:25:3...	45.757283...	4.84249...	64	-6.992000103	-92.00800323
15 May 2012 11:25:3...	45.757283...	4.84249...	64	-6.745999813	-90.88700104
15 May 2012 11:25:3...	45.757284...	4.84249...	64	-6.914000034	-91.02300262
15 May 2012 11:25:3...	45.757286...	4.84250...	64	-6.313000202	-90.53099823
15 May 2012 11:25:3...	45.757286...	4.84250...	64	-7.362999916	-91.66000366
15 May 2012 11:25:3...	45.757288...	4.84250...	64	-6.234000206	-87.85900116
15 May 2012 11:25:4...	45.757288...	4.84250...	64	-6.477000237	-89.35199738
15 May 2012 11:25:4...	45.757291...	4.8425072	64	-6.977000237	-89.61699677
15 May 2012 11:25:4...	45.757291...	4.8425072	64	-8.871000029	-93.08999634
15 May 2012 11:25:4...	45.757293...	4.84250...	64	-9.758000374	-94.08999854
15 May 2012 11:25:4...	45.757295...	4.84250...	64	-7.977000237	-92.43000031
15 May 2012 11:25:4...	45.757295...	4.84250...	64	-7.070000172	-91.30500031
15 May 2012 11:25:4...	45.757298...	4.84251...	64	-6.664000034	-91.06999969
15 May 2012 11:25:4...	45.757300...	4.8425119	64	-6.570000172	-89.66400146
15 May 2012 11:25:4...	45.757300...	4.8425119	64	-6.507999897	-89.58599854
15 May 2012 11:25:4...	45.757302...	4.84251...	64	-6.054999828	-88.86699677
15 May 2012 11:25:4...	45.757305...	4.84251...	64	-6.176000118	-89.11299896
15 May 2012 11:25:4...	45.757305...	4.84251...	64	-6.565999885	-88.48799896
15 May 2012 11:25:4...	45.757313...	4.84251...	64	-6.159999847	-88.44100189
15 May 2012 11:25:4...	45.757313...	4.84251...	64	-7.176000118	-89.98799896
15 May 2012 11:25:4...	45.757317...	4.84251...	64	-6.776999995	-88.8710022
15 May 2012 11:25:4...	45.757322...	4.84251...	64	-6.742000103	-89.21099854
15 May 2012 11:25:5...	45.757322...	4.84251...	64	-6.602000237	-88.91400146
15 May 2012 11:25:5...	45.7573285	4.84251...	64	-6.120999813	-89.16799927
15 May 2012 11:25:5...	45.757332...	4.8425182	64	-6.065999885	-89.45700073
15 May 2012 11:25:5...	45.757332...	4.8425182	64	-6.320000172	-88.97699738
15 May 2012 11:25:5...	45.757343...	4.8425274	64	-6.625	-90.06300354
15 May 2012 11:25:5...	45.757346...	4.842528	64	-6.179999828	-89.28900146
15 May 2012 11:25:5...	45.757346...	4.842528	64	-5.198999882	-88.7460022
15 May 2012 11:25:5...	45.757348...	4.8425287	64	-5.609000206	-89.45300293
15 May 2012 11:25:5...	45.757348...	4.8425287	64	-5.519999991	-88.78500366
15 May 2012 11:25:5...	45.757350...	4.84252...	64	-5.326000118	-88.51999664
15 May 2012 11:25:5...	45.757352...	4.84253...	64	-6.995999813	-90.98000336
15 May 2012 11:25:5...	45.757352...	4.84253...	64	-6.237999916	-90.14499664

Other general Drive Test Optimisation Input Parameters:

EcNoMin [dB] -> the minimum value accepted as valid input for the 3G neighbors analysis & optimization process; all samples with values less than this value will be discarded from the neighbors optimization process performed by Agileto;

RSCPMIn [dBm] -> the minimum value accepted as valid input for the 3G neighbors analysis & optimization process; all samples with values less than this value will be discarded from the neighbors optimization process performed by Agileto;

Active Set Delta [dB] -> this is the accepted range interval below the real **Top_1** best server where all the others detected **Top_X** servers may be formally considered as **Top_1** reference server against all the others available **Top_Y** servers (where the strength of the $Top_Y \leq Top_X$) for the neighboring optimization purpose. This approach increases the chance to detect optimum all the necessary and potential neighbors relationships by analyzing the neighbors relations **Top_X -> Top_Y** even when the **Top_X** is not the **Top_1** but the **Top_X** is inside of this range interval below the real **Top_1** best server; all the **Top_X** servers detected below this interval range against the real **Top_1** best server will be discarded (they will not be formally considered as **Top_1** reference server for all the others detected **Top_Y** servers, where the strength of $Top_Y \leq Top_X$); this range (value) may be chosen in conjunction with the event **e1a** in case of the 3G neighbors analysis.

Monitor Delta [dB] -> this is the monitor range interval accepted for the neighboring optimization purpose below the **Top_X** servers, in line with the idea mentioned above regarding **Active Set Delta** where the Top_X may be considered formally at some time like the Top_1 reference server against all the others Top_Y (where the strength of the Top_Y $\leq$ Top_X); all the Top_Y servers detected below the monitoring range against the Top_X will be discarded from the neighbors analysis and optimization process; this approach increase the probability of getting only the necessary neighbors relationships and this range value may be chosen in conjunction with the event **e1b** in case of the 3G neighbors analysis.

RSSIMin [dBm] (GSM) -> the minimum value accepted as valid input for the 2G related to the 3G-2G or 2G-2G neighbors analysis & optimization process; all samples with values less than this value will be discarded from the neighbors optimization process performed by Agileto;

3G Frq Layer [Source] -> This is the 3G frequency layer associated to the drive test measurement data contained by **default** into the **1st Drive Test file** (if there are provided two Drive Test input files) or which is provided on the “**left**” side in case only one Drive Test file is provided.

3G Frq Layer [Target] -> This is the 3G frequency layer associated to the drive test measurement data contained by **default** into the **2nd Drive Test file** (if there are provided two Drive Test input files) or which is provided on the “**right**” side in case only one Drive Test file is provided.

nrBS [Source] -> (Ex: 6) It is the number of the top **Best Servers** detected as exported into the Drive Test measurements (**Source**) file; (the Source/Target Drive Test file association is performed similar like it was presented above for the **3G Frq Layer [Source/Target]**); although this value may be detected initially as “**1**” due to the accepted Drive Test file format (check into the Annex the **Top_X different lines format**) the real value will be calculated by Agileto during post-processing the data and it will be reported on the output results.

nrBS [Target] -> (Ex: 6) It is the number of the top **Best Servers** detected as exported into the Drive Test measurements (**Target**) file; (the Source/Target Drive Test file association is performed similar like it was presented above for the **3G Frq Layer [Source/Target]**); although this value may be detected initially as “**1**” due to the accepted Drive Test file format (check into the Annex the **Top_X different lines format**) the real value will be calculated by Agileto during post-processing the data and it will be reported on the output results.

Minimum weight Neighbors contribution [%] -> If the neighbor relationship between the cells **A->B** is outcome as possible by a number [N] of occurrences detected for this combination/relationship (A->B) then the “weight (W)” of this number of occurrences (**$W = N / \text{TotalOccurrences} [\%]$**), where TotalOccurrences are the total occurrences for all potential neighbors related to the cell A) should be greater or

equal than the imposed threshold in order to accept the A->B as neighbor relationship; in contrary case the A->B will not be proposed by Agileto as target neighbor relationship.

Top_X (To be represented) -> This is the number of the Top_X best servers to be outputted and represented by Agileto into Google Earth environment; supposing that the number of the Best Servers exported into the Drive Test measurements file is 6 than only the first Top_X (Ex: 3 -> Top_1 + Top_2 + Top_3) best servers will be represented as dedicated representations into Google Earth; usually this is recommended to be kept = 1 and only for special analysis to be chosen as desired (usually the Top_1 best server is giving enough information about the general drive test coverage pattern).

GE neighbors lines have variable widths (up to nr of occurrences) -> Select this option in case you want that the neighbors proposals suggested by Agileto for each cell to be displayed into Google Earth with variable (proportional) width lines according with the number of occurrences detected per each neighbor relationship; if this option is not selected than all the neighbors proposals suggested by Agileto will be displayed into Google Earth with the same lines width.

Radius [Km] (Reference 3G F1) -> This is the radius [Km] of the 3G Reference cell (frequency layer F1) to be considered for the good representation of all the neighbors which are going to be generated and displayed into Google Earth; it should be correlated with the similar info which has been used when generating the mobile networks 3G & 2G by using the module **M1.2**.

Display into GE movie “ActiveSet_RePlay” the summary info for each point -> When this option is selected while running into Google Earth the movie “ActiveSet_RePlay” or “ActiveSet_NbMiss” the summary info related to each point from the drive test is presented dynamically into a dedicated balloon; if this option is not selected then the summary info for each point of the drive test is no more presented [there are presented only the links between the drive test currently point and the cells (from Active Set) which the mobile should be in communication at that time according with the input (**Active Set Delta**) provided initially as input; the Top_1 best server will be displayed always with the green line while the other cells concurrent in Active Set will be displayed with yellow color; in case that a concurrent cell from the Active Set is not detected already declared as neighbor with the Top_1 best server then the line between the currently point and that cell is colored in red; all subcases detected like missing neighbors from Active Set have generated the movie “ActiveSet_NbMiss” which is practically a sum of subcases of the movie “ActiveSet_RePlay”].

Export Data Spatial Binned -> When this option is selected then the Top_X (Source / Target) best servers ranked into descending order are exported after the spatial binning operation is performed; these files are exported/saved as *.csv files on the same path location where the Drive Test network optimization file is saved.

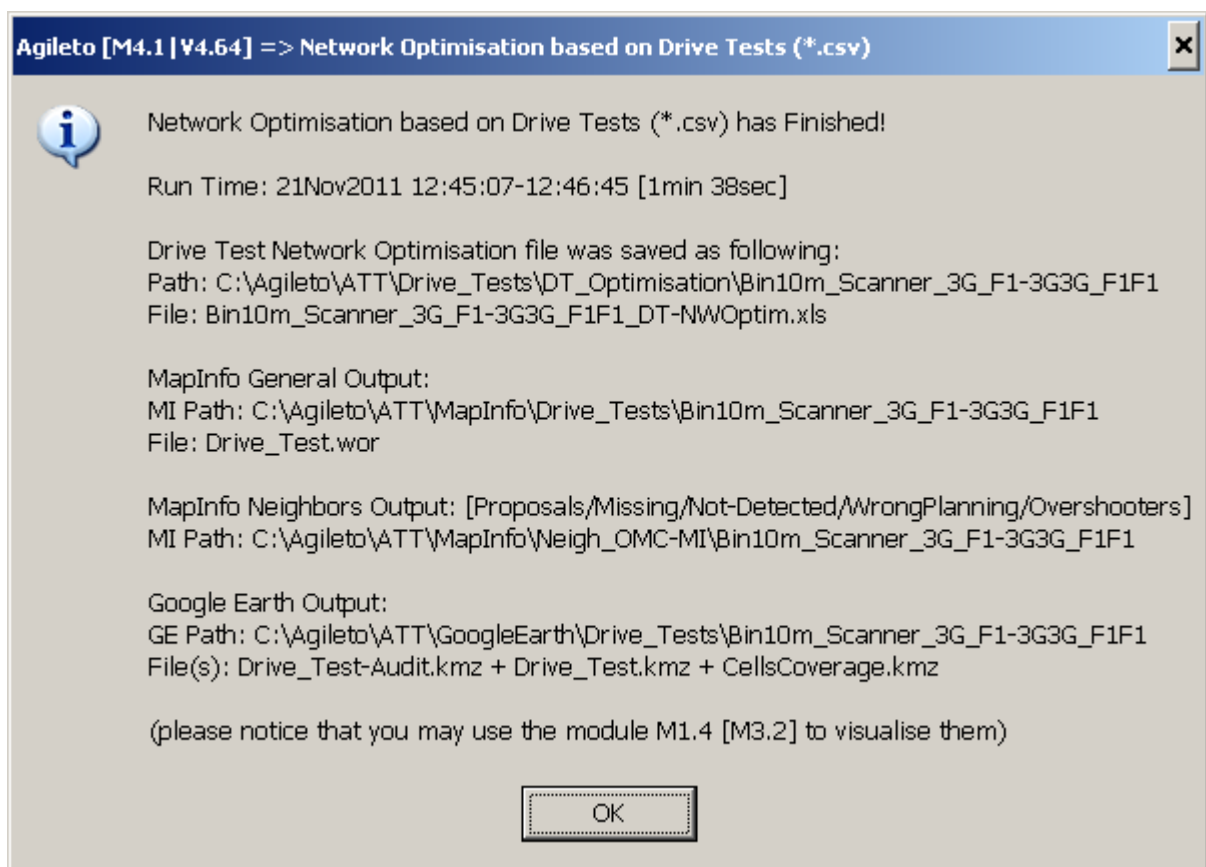
Observation:

The **3G Frq layer [Source/Target]** association is very important to be performed properly as it may lead to erroneous results if the data recorded by the scanner/mobile device was related to one specific Frequency Layer and the association was made with another Frequency Layer.

Up to the experience and the knowledge of the **RF Optimization Engineer** + the specific settings already existing into the real 3G/2G mobile networks - which trigger the different events (Ex: e1a/e1b) -there is a set of several inputs which have been mentioned above and which may be changed when providing the entire set of the inputs.

By default, the end user may keep the default proposed input values as they have been already tested extensively in many cases but obviously that the fine tuning may take place in order to get the best/optimum output results.

When Agileto has completed the calculations and already generated the output results, the Network optimization report Excel file will remain displayed (open) into the background and a similar message like the one below will be displayed.



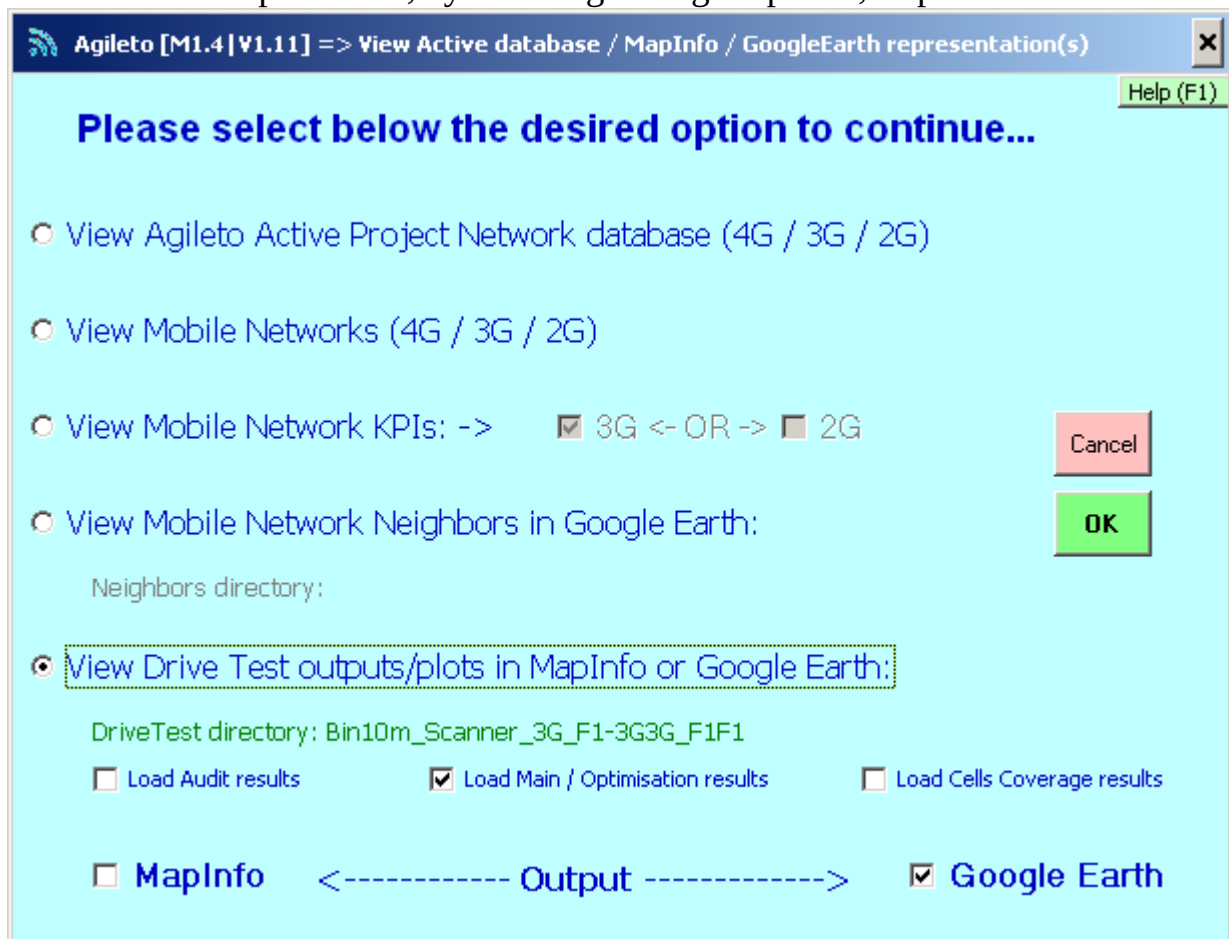
It is important to mention that the network optimization output results are saved into special folders generated automatically by Agileto under the path **...\Project\DriveTests\DT_Optimisation** respectively under the **MapInfo** and **GoogleEarth \ DriveTests ** paths folders. The name of these folders is always the

same (Ex: **Bin10m_Scanner_3G_F1-3G3G_F1F1**) being composed by the size of the bin square selected initially (Ex: **Bin10m** when spatial binning is selected), followed by the name of the Drive Test measurements input file (Ex: **Scanner_3G_F1**) followed by the type of the analysis performed (Ex: **3G3G_F1F1**).

The Drive Test Network Optimisation report Excel file (Ex: **Bin10m_Scanner_3G_F1-3G3G_F1F1_DT-NWOptim.xls**) contains two sheets (**Neighbors** and **Overshooters**) presenting the analysis and optimization results performed by Agileto based on the Drive Test measurements input file (notice: the sheet **Overshooters** is generated only for the cases **1** [3G3G IntraFrequency] or **4** [2G2G IntraGSM]).

The format and the information presented into the sheets **Neighbors** and **Overshooters** will be presented later on.

In order to see the output results in MapInfo and/or Google Earth you may use the module M1.4 as per below, by selecting the right options, as per desired.



It has to be remarked that there are three options which may be selected when seeing the output results in Google Earth, as following:

- **Load Audit results** -> This option will load into Google Earth the file named “**Drive_Test-Audit.kmz**” which contains inside multiple information regarding:
 - **GPS Invalid/Static;**

- **Measurements Source/Target Invalid;**
 - **ActiveSet_RePlay** (GE tour/movie);
- **Load Main / Optimisation results** -> This option will load the file named “**Drive_Test.kmz**” containing the main output optimization results as following:
 - **ActiveSet_Size;**
 - **Top1_EcNo** (for 3G) or **Top1_RSSI** (for 2G);
 - **Top1_RSCP** (for 3G);
(Top1 to TopX info is provided as per requested into the input parameters)
 - **Overshooters;**
 - **NB_Proposals;**
 - **NB_Missing;**
 - **NB_NotDetected;**
 - **NB_WrongPlanPSC** (for 3G) or **NB_WrongPlanBCCH** (for 2G);
- **Load Cells Coverage results** -> This option will load the file named “**CellsCoverage.kmz**” which contains the coverage detected for each cell along the drive test.

All the output optimization info presented above will be presented and described in details further.

The output files for MapInfo are different tables (*.tab files) similar like presented above for Google Earth and they are already integrated into MapInfo file named “**Drive_Test.wor**”.

Returning to the formats of the **Drive Test Neighbors / Overshooters** optimization report(s), they may be summarized as following (some screenshots will be presented further to provide the right exemplification):

Neighbors (Analysis and Optimisation):

This report presents the selected (3G-3G or 3G-2G or 2G-2G) analysis in successive lines representing all the detected combinations between the Cell Source – Cell Target (neighbors) occurrences during the time when the drive test was performed. All the detected combinations **Cell Source – Cell Target** are sorted descending per each reference Source Cell by taking for sorting the number of the occurrences representing how many times the combination Cell Source – Cell Target has been detected during the entire time while the drive test was performed.

The columns are presented into the final report from the left to right as following:

- **Cell Source details:**
(RNC/LCID/CellName/PSC/EcNoAvg|Min|Max/DistAvg|Min|Max) -> [similar fields are for 2G cells corresponding to the analysis case 2G-2G];
- **Cell Target details:**

(RNC [LAC for 3G-2G analysis]/
LCID/CellName/PSC[ARFCN]/EcNo[RSSI]Avg|Min|Max/DistAvg|Min|Max);

- **Cases detected** between Target cells **with wrong PSC/BCCH planning**/allocation;
- **Source-Target combination** with different parameters/status as following:
 - Distance;
 - Source->Target [and reverse T->S] Inside Beamwidth evaluation;
 - Number of Occurrences detected and the associated weight in percentage;
 - Existing as neighbor declaration [Yes(1)/No(0)] evaluation;
 - Source Number of Neighbors declared/detected/sib11andDch flag allocations;
 - For the 3G-2G and 2G-2G cases there are presented the number of cases when BSIC was decoded / verified properly (especially if scanner device is used);
 - The last columns present the new “**Priority allocation**” proposal based on the Drive Test measurements data as well as the info related to the “**Neighbors Status**” as **Detected** / **Missing (LI)** / **NotDetected**;

When the weight [%] represented by the number of occurrences Cell Source -> Cell Target becomes lower than the input imposed target (Ex: **1%**) then the Priority allocation will become negative, the Neighbors Status becomes **Missing LI** (stand for **Low Importance**) and that means that the respective neighbor relationship is no more considered to be included into the final neighbor list proposal.

The report ends with a summary info + the Drive Test collection data performance.

For more details please have a look into the next screenshots.

Example of 3G-3G Drive test Neighbors Optimization report – Part 1:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Source RNC	Source LocalCID	Source CellName	Source SC	Source EcNoAvg	Source EcNoMin	Source EcNoMax	Source DistAvg [Km]	Source DistMin [Km]	Source DistMax [Km]	Target RNC	Target LocalCID	Target CellName	Target SC	Target EcNoAvg	Target EcNoMin	Target EcNoMax	Target DistAvg [Km]	Target DistMin [Km]	Target DistMax [Km]	Case Wrong Target SC plannir	Wrong Target InterCells Distance [Km]	Wrong Target Cells (A,B) Inside_Be am? [A<-B / B<-A]	Distance Source- Target Cells [Km]
1																							
2	RNC0207	155 U31480A	64	-8.3	-10.1	-6.4	0.26	0.14	0.47	RNC0207	101 U30004B	456	-12.8	-16.2	-8.8	0.22	0.08	0.33	0				0.41
3	RNC0207	155 U31480A	64	-8.7	-17.5	-6.0	0.40	0.25	0.72	RNC0207	102 U30004C	104	-11.7	-19.7	-7.2	0.24	0.14	0.50	0				0.41
4	RNC0207	155 U31480A	64	-9.4	-12.2	-8.4	0.73	0.69	0.78	RNC0207	106 U30019A	136	-9.6	-13.9	-8.4	0.78	0.57	0.89	0				0.48
5	RNC0207	155 U31480A	64	-7.8	-9.6	-5.1	0.10	0.01	0.25	RNC0207	156 U31480B	288	-11.3	-15.6	-5.1	0.10	0.01	0.25	0				0.00
6	RNC0207	155 U31480A	64	-10.5	-14.1	-8.1	0.68	0.47	0.79	RNC0207	160 U31483C	298	-14.0	-16.1	-9.7	0.54	0.25	0.86	0				0.78
7	RNC0207	155 U31480A	64	-10.2	-14.1	-8.1	0.71	0.68	0.74	RNC0207	150 U31474B	48	-14.1	-16.7	-10.7	0.40	0.22	0.50	0				0.88
8	RNC0207	155 U31480A	64	-10.3	-11.8	-8.8	0.64	0.34	0.78	RNC0207	104 U30005B	155	-14.9	-17.1	-12.2	0.58	0.42	0.84	0				1.16
9	RNC0207	155 U31480A	64	-9.6	-10.8	-8.0	0.32	0.27	0.35	RNC0207	22335 U31521C	89	-15.5	-18.2	-10.8	0.55	0.40	0.72	0				0.55
10	RNC0207	155 U31480A	64	-10.9	-13.2	-9.5	0.32	0.26	0.35	RNC0207	22334 U31521B	240	-15.3	-18.2	-13.2	0.59	0.40	0.73	0				0.55
11	RNC0207	155 U31480A	64	-11.0	-13.2	-9.5	0.32	0.26	0.35	RNC0207	22333 U31521A	257	-15.9	-18.3	-11.3	0.59	0.40	0.73	0				0.55
12	RNC0207	155 U31480A	64	-10.5	-12.2	-8.3	0.63	0.47	0.91	RNC0207	159 U31483B	290	-14.8	-16.2	-11.9	0.45	0.31	0.86	0				0.78
13	RNC0207	155 U31480A	64	-13.0	-15.1	-10.3	1.69	1.68	1.70	RNC0207	131 U30046C	107	-16.2	-17.3	-14.1	0.75	0.74	0.77	0				1.72
14	RNC0207	155 U31480A	64	-11.5	-14.1	-8.8	0.74	0.68	0.78	RNC0207	121 U30027B	67	-15.3	-18.0	-12.9	0.99	0.91	1.14	0				1.59
15	RNC0207	155 U31480A	64	-12.6	-15.1	-10.3	1.69	1.68	1.70	RNC0207	105 U30020C	163	-14.7	-18.7	-10.3	0.53	0.52	0.54	0				1.16
16	RNC0207	155 U31480A	64	-12.0	-14.2	-9.5	1.37	0.73	1.69	RNC0207	124 U30028B	171	-17.8	-19.6	-14.5	1.15	0.90	1.65	0				2.34
17	RNC0207	155 U31480A	64	-8.1	-8.6	-7.6	0.03	0.01	0.04	RNC0207	157 U31480C	296	-14.4	-15.4	-12.7	0.03	0.01	0.04	0				0.00
18	RNC0207	155 U31480A	64	-12.2	-14.1	-11.0	0.73	0.68	0.77	RNC0207	110 U30020B	34	-15.4	-16.7	-13.7	0.88	0.77	0.95	0				1.24
19	RNC0207	155 U31480A	64	-13.3	-14.2	-12.4	1.69	1.69	1.69	RNC0207	167 U31491A	169	-18.3	-19.7	-16.8	0.62	0.62	0.63	0				1.56
20	RNC0207	155 U31480A	64	-13.2	-14.1	-12.4	2.39	2.38	2.39	RNC0207	503 U31997C	509	-17.4	-18.3	-16.5	1.99	1.98	1.99	0				2.92
21	RNC0207	155 U31480A	64	-10.4	-11.9	-8.9	0.55	0.18	0.91	RNC0207	3363 U30015A	464	-13.7	-15.5	-11.9	0.65	0.35	0.95	0				0.35
22	RNC0207	155 U31480A	64	-17.9	-18.1	-17.7	2.41	2.41	2.42	RNC0207	170 U31494A	58	-19.4	-19.5	-19.4	1.23	1.23	1.23	0				1.27
23	RNC0207	155 U31480A	64	-13.2	-14.1	-12.4	2.39	2.38	2.39	RNC0207	998 U31988C	317	-13.2	-14.1	-12.4	1.63	1.63	1.64	0				3.31
24	RNC0207	155 U31480A	64	-13.2	-14.1	-12.4	2.39	2.38	2.39	RNC0207	133 U30047B	19	-14.5	-16.5	-12.4	0.38	0.38	0.38	0				2.60
25	RNC0207	155 U31480A	64	-13.2	-14.1	-12.4	2.39	2.38	2.39	RNC0207	577 U31488C	68	-14.9	-15.0	-14.8	0.30	0.29	0.30	0				2.68
26	RNC0207	155 U31480A	64	-15.9	-17.7	-14.1	2.40	2.39	2.41	RNC0207	152 U31476A	116	-17.8	-19.9	-15.6	1.70	1.69	1.71	0				0.94
27	RNC0207	155 U31480A	64	-8.8	-9.6	-7.9	0.25	0.24	0.25	RNC0207	500 U31424C	392	-15.8	-17.2	-14.3	1.08	1.07	1.08	0				1.31
28	RNC0207	155 U31480A	64	-15.1	-15.1	-15.1	1.70	1.70	1.70	RNC0207	148 U31473C	236	-19.6	-19.6	-19.6	0.64	0.64	0.64	0				1.42
29	RNC0207	155 U31480A	64	-14.1	-14.1	-14.1	2.39	2.39	2.39	RNC0004	679 U30087C	108	-19.2	-19.2	-19.2	2.97	2.97	2.97	0				3.04
30	RNC0207	155 U31480A	64	-12.4	-12.4	-12.4	2.38	2.38	2.38	RNC0066	24867 U37303A	238	-19.3	-19.3	-19.3	5.53	5.53	5.53	0				7.56
31	RNC0207	155 U31480A	64	-11.9	-11.9	-11.9	0.91	0.91	0.91	RNC0207	258 U31576C	105	-13.1	-13.1	-13.1	0.22	0.22	0.22	0				1.13
32	RNC0207	155 U31480A	64	-14.8	-14.8	-14.8	1.69	1.69	1.69	RNC0207	169 U31491C	457	-18.6	-18.6	-18.6	0.60	0.60	0.60	0				1.56
33	RNC0207	155 U31480A	64	-9.5	-9.5	-9.5	0.73	0.73	0.73	RNC0207	153 U31476B	36	-9.5	-9.5	-9.5	0.41	0.41	0.41	0				0.94
34	RNC0207	155 U31480A	64	-14.1	-14.1	-14.1	2.39	2.39	2.39	RNC0207	136 U30077B	137	-18.9	-18.9	-18.9	0.48	0.48	0.48	0				2.35
35	RNC0207	155 U31480A	64	-12.4	-12.4	-12.4	1.69	1.69	1.69	RNC0207	179 U32848A	371	-19.4	-19.4	-19.4	0.32	0.32	0.32	0				1.94
36	RNC0207	155 U31480A	64	-14.2	-14.2	-14.2	1.69	1.69	1.69	RNC0207	1002 U30511A	403	-19.3	-19.3	-19.3	3.75	3.75	3.75	0				3.22
37	RNC0207	155 U31480A	64	-14.2	-14.2	-14.2	1.69	1.69	1.69	RNC0207	103 U30005A	306	-18.8	-18.8	-18.8	0.53	0.53	0.53	0				1.16
38	RNC0207	155 U31480A	64	-7.4	-7.4	-7.4	0.28	0.28	0.28	RNC0207	3366 U30015C	217	-15.0	-15.0	-15.0	0.60	0.60	0.60	0				0.35
39	RNC0207	155 U31480A	64							RNC0207	673 U30001C	440											1.68
40	RNC0207	155 U31480A	64							RNC0207	100 U30004A	448											0.41
41	RNC0207	155 U31480A	64							RNC0207	129 U30046A	407											1.72
42	RNC0207	155 U31480A	64							RNC0207	149 U31474A	168											0.88
43	RNC0207	155 U31480A	64							RNC0207	158 U31483A	282											0.78
44	RNC0207	155 U31480A	64							RNC0207	171 U31494B	66											1.27
45	RNC0207	155 U31480A	64							RNC0207	173 U31495A	345											1.79
46	RNC0207	155 U31480A	64							RNC0207	175 U31495C	442											1.79
47	RNC0207	155 U31480A	64							RNC0207	235 U31498A	233											0.48
48	RNC0207	155 U31480A	64							RNC0207	257 U31576B	97											1.13
49	RNC0207	155 U31480A	64							RNC0207	32265 V31476B	36											0.94
50	RNC0207	155 U31480A	64							RNC0207	32267 V31480A	64											0.00
51	RNC0207	155 U31480A	64							RNC0207	51581 W31480A	64											0.00
52	RNC0207	102 U30004C	104	-6.4	-10.3	-4.4	0.09	0.01	0.19	RNC0207	101 U30004B	456	-8.7	-16.1	-4.4	0.09	0.01	0.19	0				0.00
53	RNC0207	102 U30004C	104	-8.9	-14.0	-5.6	0.27	0.14	0.65	RNC0207	155 U31480A	64	-12.0	-18.4	-5.6	0.47	0.30	0.70	0				0.41

Example of 3G-3G Drive test Neighbors Optimization report – Part 2:

	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
	Wrong Target Cells (A,B) Inside_Beam? [A<-B /B<-A]	Distance Source- Target Cells [Km]	S<->T Inside_Beam? [S<-T /T<-S]	Nr of Occurrences	Nr of Occurrences [%]	Reciprocal Detected	Existing Neighbor Declaration	Source Nr Neighbors	Nr Neighbors detected	Source Nr Neighbors sib11and Dch	Nr Neighbors sib11and Dch detected	Nr Occurrences with BSIC verified	Cell_Source	Cell_Target	RNC_Source	RNC_Target	sib11OrDch Usage	Priority detected	Neighbor status	Existing Cells Source + Target Validation	Region Cell Source	Region Cell Target
1		0.41	True/False	21	13.64%	TRUE	1	30	17	30	17	0	W155_11	W101_21	204	204	sib11AndDch	1	Detected	Validated	RNC0207	RNC0207
3		0.41	True/False	19	12.34%	TRUE	1	30	17	30	17	0	W155_11	W102_31	204	204	sib11AndDch	2	Detected	Validated	RNC0207	RNC0207
4		0.48	False/False	11	7.14%	TRUE	1	30	17	30	17	0	W155_11	W106_11	204	204	sib11AndDch	3	Detected	Validated	RNC0207	RNC0207
5		0.00	True/False	11	7.14%	TRUE	1	30	17	30	17	0	W155_11	W156_21	204	204	sib11AndDch	4	Detected	Validated	RNC0207	RNC0207
6		0.78	True/False	10	6.49%	TRUE	1	30	17	30	17	0	W155_11	W160_31	204	204	sib11AndDch	5	Detected	Validated	RNC0207	RNC0207
7		0.88	False/False	7	4.55%	TRUE	1	30	17	30	17	0	W155_11	W150_21	204	204	sib11AndDch	6	Detected	Validated	RNC0207	RNC0207
8		1.16	False/True	7	4.55%	TRUE	1	30	17	30	17	0	W155_11	W104_21	204	204	sib11AndDch	7	Detected	Validated	RNC0207	RNC0207
9		0.55	False/True	6	3.90%	TRUE	1	30	17	30	17	0	W155_11	W22335_31	204	204	sib11AndDch	8	Detected	Validated	RNC0207	RNC0207
10		0.55	False/False	5	3.25%	FALSE	0	30	17	30	17	0	W155_11	W22334_21	204	204	sib11AndDch	9	Missing	Validated	RNC0207	RNC0207
11		0.55	False/False	5	3.25%	TRUE	1	30	17	30	17	0	W155_11	W22333_11	204	204	sib11AndDch	10	Detected	Validated	RNC0207	RNC0207
12		0.78	True/False	4	2.60%	TRUE	1	30	17	30	17	0	W155_11	W159_21	204	204	sib11AndDch	11	Detected	Validated	RNC0207	RNC0207
13		1.72	True/False	4	2.60%	TRUE	0	30	17	30	17	0	W155_11	W131_31	204	204	sib11AndDch	12	Missing	Validated	RNC0207	RNC0207
14		1.59	True/False	3	1.95%	TRUE	1	30	17	30	17	0	W155_11	W121_21	204	204	sib11AndDch	13	Detected	Validated	RNC0207	RNC0207
15		1.16	False/False	3	1.95%	TRUE	0	30	17	30	17	0	W155_11	W105_31	204	204	sib11AndDch	14	Missing	Validated	RNC0207	RNC0207
16		2.34	True/True	3	1.95%	FALSE	0	30	17	30	17	0	W155_11	W124_21	204	204	sib11AndDch	15	Missing	Validated	RNC0207	RNC0207
17		0.00	True/False	3	1.95%	TRUE	1	30	17	30	17	0	W155_11	W157_31	204	204	sib11AndDch	16	Detected	Validated	RNC0207	RNC0207
18		1.24	False/False	3	1.95%	TRUE	0	30	17	30	17	0	W155_11	W110_21	204	204	sib11AndDch	17	Missing	Validated	RNC0207	RNC0207
19		1.56	False/False	2	1.30%	FALSE	0	30	17	30	17	0	W155_11	W167_11	204	204	sib11AndDch	18	Missing	Validated	RNC0207	RNC0207
20		2.92	False/False	2	1.30%	TRUE	0	30	17	30	17	0	W155_11	W503_31	204	4	sib11AndDch	19	Missing	Validated	RNC0207	RNC0207
21		0.35	False/False	2	1.30%	TRUE	1	30	17	30	17	0	W155_11	W3363_11	204	204	sib11AndDch	20	Detected	Validated	RNC0207	RNC0207
22		1.27	True/False	2	1.30%	FALSE	0	30	17	30	17	0	W155_11	W170_11	204	204	sib11AndDch	21	Missing	Validated	RNC0207	RNC0207
23		3.31	False/False	2	1.30%	TRUE	0	30	17	30	17	0	W155_11	W998_31	204	204	sib11AndDch	22	Missing	Validated	RNC0207	RNC0207
24		2.60	True/False	2	1.30%	TRUE	0	30	17	30	17	0	W155_11	W133_21	204	204	sib11AndDch	23	Missing	Validated	RNC0207	RNC0207
25		2.68	True/False	2	1.30%	TRUE	0	30	17	30	17	0	W155_11	W577_31	204	204	sib11AndDch	24	Missing	Validated	RNC0207	RNC0207
26		0.94	True/False	2	1.30%	TRUE	1	30	17	30	17	0	W155_11	W152_11	204	204	sib11AndDch	25	Detected	Validated	RNC0207	RNC0207
27		1.31	False/True	2	1.30%	FALSE	0	30	17	30	17	0	W155_11	W500_31	204	204	sib11AndDch	26	Missing	Validated	RNC0207	RNC0207
28		1.42	True/False	1	0.65%	TRUE	0	30	17	30	17	0	W155_11	W148_31	204	204	sib11AndDch	-27	Missing LI	Validated	RNC0207	RNC0207
29		3.04	False/True	1	0.65%	TRUE	0	30	17	30	17	0	W155_11	W679_31	204	4	sib11AndDch	-28	Missing LI	Validated	RNC0207	RNC0004
30		7.56	True/False	1	0.65%	FALSE	0	30	17	30	17	0	W155_11	W24867_11	204	66	sib11AndDch	-29	Missing LI	Validated	RNC0207	RNC0066
31		1.13	False/False	1	0.65%	FALSE	0	30	17	30	17	0	W155_11	W258_31	204	204	sib11AndDch	-30	Missing LI	Validated	RNC0207	RNC0207
32		1.56	False/False	1	0.65%	FALSE	0	30	17	30	17	0	W155_11	W169_31	204	204	sib11AndDch	-31	Missing LI	Validated	RNC0207	RNC0207
33		0.94	True/True	1	0.65%	TRUE	1	30	17	30	17	0	W155_11	W153_21	204	204	sib11AndDch	-32	Detected	Validated	RNC0207	RNC0207
34		2.35	True/False	1	0.65%	FALSE	0	30	17	30	17	0	W155_11	W136_21	204	204	sib11AndDch	-33	Missing LI	Validated	RNC0207	RNC0207
35		1.94	False/False	1	0.65%	TRUE	1	30	17	30	17	0	W155_11	W179_11	204	204	sib11AndDch	-34	Detected	Validated	RNC0207	RNC0207
36		3.22	False/True	1	0.65%	FALSE	0	30	17	30	17	0	W155_11	W1002_11	204	4	sib11AndDch	-35	Missing LI	Validated	RNC0207	RNC0207
37		1.16	False/False	1	0.65%	FALSE	0	30	17	30	17	0	W155_11	W103_11	204	204	sib11AndDch	-36	Missing LI	Validated	RNC0207	RNC0207
38		0.35	False/False	1	0.65%	FALSE	1	30	17	30	17	0	W155_11	W3366_31	204	204	sib11AndDch	-37	Detected	Validated	RNC0207	RNC0207
39		1.68	False/False				1	30											NotDetected	Existing	RNC0207	RNC0207
40		0.41	True/False				1	30											NotDetected	Existing	RNC0207	RNC0207
41		1.72	True/False				1	30											NotDetected	Existing	RNC0207	RNC0207
42		0.88	False/False				1	30											NotDetected	Existing	RNC0207	RNC0207
43		0.78	True/False				1	30											NotDetected	Existing	RNC0207	RNC0207
44		1.27	True/False				1	30											NotDetected	Existing	RNC0207	RNC0207
45		1.79	True/False				1	30											NotDetected	Existing	RNC0207	RNC0207
46		1.79	True/False				1	30											NotDetected	Existing	RNC0207	RNC0207
47		0.48	False/True				1	30											NotDetected	Existing	RNC0207	RNC0207
48		1.13	False/False				1	30											NotDetected	Existing	RNC0207	RNC0207
49		0.94	True/True				1	30											NotDetected	Existing	RNC0207	RNC0207
50		0.00	True/True				1	30											NotDetected	Existing	RNC0207	RNC0207
51		0.00	True/True				1	30											NotDetected	Existing	RNC0207	RNC0207
52		0.00	False/False	18	31.58%	TRUE	1	28	10	28	10	0	W102_31	W101_21	204	204	sib11AndDch	1	Detected	Validated	RNC0207	RNC0207
53		0.41	False/True	12	21.05%	TRUE	1	28	10	28	10	0	W102_31	W155_11	204	204	sib11AndDch	2	Detected	Validated	RNC0207	RNC0207

Example of 3G-2G Drive test Neighbors Optimization report – Part 1:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	Source RNC	Source LocalCID	Source CellName	Source SC	Source EcNoAvg	Source EcNoMin	Source EcNoMax	Source DistAvg [Km]	Source DistMin [Km]	Source DistMax [Km]	Target LAC	Target LocalCID	Target CellName	Target BCCH	Target RSSIAvg	Target RSSIMin	Target RSSIMax	Target DistAvg [Km]	Target DistMin [Km]	Target DistMax [Km]	Case Wrong Target BCCH planning	Wrong Target InterCells Distance [Km]	Wrong Target Cells (A,B) Inside_Beam? [A<R /B<A]	Distance Source- Target Cells [Km]
1																								
2	RNC0258	25757	U10927B	78	-7.4	-11.4	-5.4	0.39	0.17	0.70	194	30110	C10927B	778	-81.4	-94.0	-71.9	0.39	0.17	0.70	0			0.00
3	RNC0258	25757	U10927B	78	-7.4	-11.4	-5.4	0.40	0.17	0.70	194	32486	C13977A	1015	-76.8	-89.0	-62.4	0.38	0.29	0.50	0			0.68
4	RNC0258	25757	U10927B	78	-7.6	-10.5	-5.4	0.43	0.17	0.70	194	39392	C13964C	1010	-82.8	-93.0	-70.9	0.32	0.18	0.52	0			0.59
5	RNC0258	25757	U10927B	78	-7.2	-10.4	-6.1	0.38	0.17	0.67	194	1677	C15867A	786	-82.2	-89.6	-74.1	0.19	0.08	0.28	0			0.42
6	RNC0258	25757	U10927B	78	-6.8	-11.4	-5.4	0.27	0.17	0.41	194	1679	C15867C	788	-81.6	-95.2	-70.7	0.21	0.08	0.37	0			0.42
7	RNC0258	25757	U10927B	78	-7.5	-10.4	-6.1	0.39	0.17	0.70	194	2027	C15870A	792	-83.3	-93.0	-76.8	0.40	0.32	0.50	3	0.68	False/False	0.68
8	RNC0258	25757	U10927B	78	-7.0	-11.4	-5.4	0.29	0.17	0.67	194	962	C10551B	772	-84.4	-94.5	-73.5	0.43	0.28	0.88	0			0.46
9	RNC0258	25757	U10927B	78	-8.4	-10.5	-6.5	0.58	0.46	0.70	194	1678	C15867B	781	-83.5	-88.0	-75.8	0.21	0.11	0.32	2	0.59	False/False	0.42
10	RNC0258	25757	U10927B	78	-7.3	-10.4	-6.1	0.40	0.19	0.67	194	3308	C13657B	1002	-83.9	-93.0	-75.7	0.74	0.58	0.97	0			0.42
11	RNC0258	25757	U10927B	78	-8.4	-10.5	-6.5	0.59	0.46	0.70	194	2320	C15868A	779	-81.6	-91.0	-72.3	0.45	0.34	0.57	0			1.03
12	RNC0258	25757	U10927B	78	-6.9	-11.4	-6.1	0.28	0.19	0.39	194	1943	C15872A	781	-85.8	-94.0	-78.5	0.57	0.45	0.63	2	0.59	False/False	0.76
13	RNC0258	25757	U10927B	78	-8.5	-10.5	-6.5	0.60	0.48	0.70	194	39799	C13555C	1009	-80.6	-86.0	-76.4	0.59	0.49	0.71	0			1.18
14	RNC0258	25757	U10927B	78	-8.3	-10.5	-6.5	0.56	0.46	0.68	194	1984	C15863C	768	-81.9	-90.0	-76.4	0.21	0.18	0.24	0			0.59
15	RNC0258	25757	U10927B	78	-6.7	-9.9	-5.4	0.28	0.21	0.37	194	49225	C15866B	776	-86.3	-91.5	-78.8	0.49	0.36	0.67	4	0.57	False/False	0.38
16	RNC0258	25757	U10927B	78	-8.4	-10.5	-6.4	0.59	0.34	0.70	194	39391	C13964B	1019	-83.0	-94.2	-72.1	0.21	0.18	0.34	1	0.53	False/False	0.59
17	RNC0258	25757	U10927B	78	-6.7	-9.9	-5.4	0.26	0.21	0.33	194	30111	C10927C	792	-83.4	-92.8	-67.0	0.26	0.21	0.33	3	0.68	False/False	0.00
18	RNC0258	25757	U10927B	78	-7.0	-11.4	-5.4	0.36	0.25	0.69	194	32488	C13977C	1019	-82.3	-85.8	-72.9	0.38	0.29	0.49	1	0.53	False/False	0.68
19	RNC0258	25757	U10927B	78	-6.8	-9.9	-5.5	0.23	0.19	0.28	194	961	C10551A	784	-79.6	-90.0	-72.5	0.36	0.28	0.45	0			0.46
20	RNC0258	25757	U10927B	78	-6.5	-7.4	-6.1	0.24	0.17	0.34	153	39724	C15278B	1012	-88.4	-94.0	-79.8	0.99	0.92	1.06	0			0.75
21	RNC0258	25757	U10927B	78	-7.8	-10.4	-6.1	0.41	0.20	0.68	194	56292	C15152C	1005	-91.2	-95.0	-88.0	0.73	0.61	0.86	0			0.87
22	RNC0258	25757	U10927B	78	-8.2	-10.0	-6.5	0.51	0.19	0.66	194	1502	C15861B	776	-90.4	-94.0	-87.2	0.82	0.58	0.95	4	0.57	False/False	0.42
23	RNC0258	25757	U10927B	78	-8.1	-8.7	-7.2	0.67	0.64	0.70	194	32487	C13977B	1013	-78.2	-90.5	-69.1	0.34	0.32	0.35	0			0.68
24	RNC0258	25757	U10927B	78	-7.1	-9.9	-5.5	0.25	0.21	0.41	194	2029	C15870C	770	-90.2	-98.5	-86.2	0.49	0.29	0.56	0			0.68
25	RNC0258	25757	U10927B	78	-7.6	-11.4	-6.1	0.32	0.26	0.41	194	1680	C15876A	798	-91.6	-96.3	-87.5	0.80	0.79	0.81	0			0.97
26	RNC0258	25757	U10927B	78	-8.1	-8.9	-7.2	0.47	0.46	0.48	194	39390	C13964A	1017	-83.0	-84.0	-82.0	0.22	0.21	0.22	0			0.59
27	RNC0258	25757	U10927B	78	-6.3	-6.3	-6.3	0.41	0.41	0.41	194	1866	C15877A	783	-90.0	-90.0	-90.0	0.71	0.71	0.71	0			1.06
28	RNC0258	25757	U10927B	78	-9.1	-9.1	-9.1	0.21	0.21	0.21	194	3309	C13657C	1023	-81.0	-81.0	-81.0	0.62	0.62	0.62	0			0.42
29	RNC0258	25757	U10927B	78	-9.1	-9.1	-9.1	0.21	0.21	0.21	153	494	C10550B	780	-97.5	-97.5	-97.5	0.93	0.93	0.93	0			0.75
30	RNC0258	25757	U10927B	78	-8.6	-8.6	-8.6	0.67	0.67	0.67	194	30091	C10922C	773	-96.0	-96.0	-96.0	0.55	0.55	0.55	0			1.19
31	RNC0258	25757	U10927B	78							194	30109	C10927A	770										0.00
32	RNC0258	25757	U10927B	78							194	1982	C15863A	773										0.59
33	RNC0258	5771	U15867B	372	-8.0	-12.9	-4.9	0.25	0.10	0.39	194	1678	C15867B	781	-75.6	-85.1	-57.8	0.25	0.10	0.39	0			0.00
34	RNC0258	5771	U15867B	372	-8.0	-12.9	-4.9	0.25	0.10	0.39	194	32486	C13977A	1015	-64.0	-80.5	-47.0	0.27	0.03	0.46	0			0.29
35	RNC0258	5771	U15867B	372	-8.3	-12.9	-4.9	0.26	0.10	0.39	194	2027	C15870A	792	-75.7	-92.3	-48.9	0.23	0.03	0.39	0			0.29
36	RNC0258	5771	U15867B	372	-7.8	-11.9	-4.9	0.27	0.18	0.39	194	32487	C13977B	1013	-64.5	-79.6	-48.1	0.20	0.03	0.39	0			0.29
37	RNC0258	5771	U15867B	372	-8.2	-12.9	-5.1	0.22	0.10	0.32	194	39392	C13964C	1010	-75.6	-87.4	-60.5	0.24	0.10	0.49	0			0.34
38	RNC0258	5771	U15867B	372	-8.2	-12.9	-4.9	0.26	0.16	0.33	194	39799	C13555C	1009	-77.9	-84.5	-64.0	0.58	0.49	0.74	0			0.80
39	RNC0258	5771	U15867B	372	-7.3	-9.7	-4.9	0.27	0.18	0.39	194	32488	C13977C	1019	-70.0	-78.3	-64.6	0.17	0.03	0.32	5	0.53	False/False	0.29
40	RNC0258	5771	U15867B	372	-8.7	-12.9	-5.4	0.27	0.16	0.33	194	2320	C15868A	779	-80.5	-86.4	-75.0	0.37	0.28	0.51	0			0.61
41	RNC0258	5771	U15867B	372	-7.1	-9.6	-4.9	0.27	0.18	0.39	194	2028	C15870B	794	-73.7	-84.0	-57.5	0.16	0.03	0.31	0			0.29
42	RNC0258	5771	U15867B	372	-8.7	-12.9	-5.7	0.21	0.10	0.30	194	1984	C15863C	768	-77.6	-90.0	-66.0	0.18	0.10	0.24	0			0.34
43	RNC0258	5771	U15867B	372	-8.6	-12.9	-5.7	0.20	0.10	0.28	194	1677	C15867A	786	-81.9	-90.3	-71.1	0.20	0.10	0.28	0			0.00
44	RNC0258	5771	U15867B	372	-8.4	-12.9	-5.7	0.19	0.10	0.28	194	3308	C13657B	1002	-80.8	-86.1	-77.4	0.82	0.74	0.97	0			0.79
45	RNC0258	5771	U15867B	372	-9.6	-12.9	-6.6	0.21	0.10	0.30	194	30110	C10927B	778	-81.9	-88.2	-74.9	0.58	0.44	0.68	0			0.42
46	RNC0258	5771	U15867B	372	-7.9	-9.6	-5.4	0.28	0.20	0.39	194	2029	C15870C	770	-80.5	-92.5	-76.4	0.15	0.04	0.24	0			0.29

It is to remark above the cases detected as “**Wrong Target BCCH planning**” (see above the columns colored in pink); each such of case is detected when the UE is under the coverage of one **source** cell and there are detected as potential neighbors at least two different cells which share the same PSC (3G) or BCCH (2G). Obs: More than two lines may be detected as belonging to same case.

Example of 3G-2G Drive test Neighbors Optimization report – Part 2:

1	2	3	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
Source RNC	Source LocalCID	Source CellName	Distance Source-Target Cells [Km]	S<->T Inside_Beam? [S<-T / T<-S]	Nr of Occurrences	Nr of Occurrences [%]	Reciprocal Detected	Existing Neighbor Declaration	Source Nr Neighbors	Nr Neighbors detected	Source Nr Neighbors sib11and Dch	Nr Neighbors sib11and Dch detected	Nr Occurrences with BSIC verified	Cell_Source	Cell_Target	RNC_Source	Priority detected	Neighbor status
2	RNC0258	25757 U10927B	0.00	False/False	62	11.46%		1	16	14	16	14	62	W25757_21	D30110_2	258	1	Detected
3	RNC0258	25757 U10927B	0.68	True/False	57	10.54%		1	16	14	16	14	57	W25757_21	D32486_1	258	2	Detected
4	RNC0258	25757 U10927B	0.59	True/False	43	7.95%		1	16	14	16	14	43	W25757_21	D39392_3	258	3	Detected
5	RNC0258	25757 U10927B	0.42	True/False	38	7.02%		1	16	14	16	14	38	W25757_21	D1677_1	258	4	Detected
6	RNC0258	25757 U10927B	0.42	True/False	36	6.65%		1	16	14	16	14	36	W25757_21	D1679_3	258	5	Detected
7	RNC0258	25757 U10927B	0.68	True/False	28	5.18%		0	16	14	16	14	28	W25757_21	D2027_1	258	6	Missing
8	RNC0258	25757 U10927B	0.46	False/False	26	4.81%		1	16	14	16	14	26	W25757_21	D962_2	258	7	Detected
9	RNC0258	25757 U10927B	0.42	True/False	24	4.44%		1	16	14	16	14	24	W25757_21	D1678_2	258	8	Detected
10	RNC0258	25757 U10927B	0.42	False/False	22	4.07%		1	16	14	16	14	22	W25757_21	D3308_2	258	9	Detected
11	RNC0258	25757 U10927B	1.03	True/False	20	3.70%		0	16	14	16	14	20	W25757_21	D2320_1	258	10	Missing
12	RNC0258	25757 U10927B	0.76	False/True	19	3.51%		1	16	14	16	14	19	W25757_21	D1943_1	258	11	Detected
13	RNC0258	25757 U10927B	1.18	True/False	18	3.33%		0	16	14	16	14	18	W25757_21	D39799_3	258	12	Missing
14	RNC0258	25757 U10927B	0.59	True/False	18	3.33%		0	16	14	16	14	18	W25757_21	D1984_3	258	13	Missing
15	RNC0258	25757 U10927B	0.38	False/False	17	3.14%		1	16	14	16	14	17	W25757_21	D49225_2	258	14	Detected
16	RNC0258	25757 U10927B	0.59	True/False	16	2.96%		0	16	14	16	14	16	W25757_21	D39391_2	258	15	Missing
17	RNC0258	25757 U10927B	0.00	False/False	16	2.96%		1	16	14	16	14	16	W25757_21	D30111_3	258	16	Detected
18	RNC0258	25757 U10927B	0.68	True/False	15	2.77%		1	16	14	16	14	15	W25757_21	D32488_3	258	17	Detected
19	RNC0258	25757 U10927B	0.46	False/False	13	2.40%		1	16	14	16	14	13	W25757_21	D961_1	258	18	Detected
20	RNC0258	25757 U10927B	0.75	False/True	11	2.03%		0	16	14	16	14	11	W25757_21	D39724_2	258	19	Missing
21	RNC0258	25757 U10927B	0.82	False/True	9	1.66%		0	16	14	16	14	9	W25757_21	D56292_3	258	20	Missing
22	RNC0258	25757 U10927B	0.42	False/False	8	1.48%		0	16	14	16	14	8	W25757_21	D1502_2	258	21	Missing
23	RNC0258	25757 U10927B	0.68	True/False	7	1.29%		0	16	14	16	14	7	W25757_21	D32487_2	258	22	Missing
24	RNC0258	25757 U10927B	0.68	True/False	7	1.29%		0	16	14	16	14	7	W25757_21	D2029_3	258	23	Missing
25	RNC0258	25757 U10927B	0.97	False/True	5	0.92%		0	16	14	16	14	5	W25757_21	D1680_1	258	-24	Missing LI
26	RNC0258	25757 U10927B	0.59	True/False	2	0.37%		0	16	14	16	14	2	W25757_21	D39390_1	258	-25	Missing LI
27	RNC0258	25757 U10927B	1.06	False/True	1	0.18%		0	16	14	16	14	1	W25757_21	D1866_1	258	-26	Missing LI
28	RNC0258	25757 U10927B	0.42	False/False	1	0.18%		0	16	14	16	14	1	W25757_21	D3309_3	258	-27	Missing LI
29	RNC0258	25757 U10927B	0.75	False/True	1	0.18%		1	16	14	16	14	1	W25757_21	D494_2	258	-28	Detected
30	RNC0258	25757 U10927B	1.19	True/False	1	0.18%		0	16	14	16	14	1	W25757_21	D30091_3	258	-29	Missing LI
31	RNC0258	25757 U10927B	0.00	False/True				1	16		16					258		NotDetected
32	RNC0258	25757 U10927B	0.59	True/False				1	16		16					258		NotDetected
33	RNC0258	5771 U15867B	0.00	False/False	42	10.63%		1	22	19	22	19	42	W5771_21	D1678_2	258	1	Detected
34	RNC0258	5771 U15867B	0.29	False/False	42	10.63%		1	22	19	22	19	42	W5771_21	D32486_1	258	2	Detected
35	RNC0258	5771 U15867B	0.29	False/False	33	8.35%		1	22	19	22	19	33	W5771_21	D2027_1	258	3	Detected
36	RNC0258	5771 U15867B	0.29	False/False	26	6.58%		1	22	19	22	19	26	W5771_21	D32487_2	258	4	Detected
37	RNC0258	5771 U15867B	0.34	False/True	25	6.33%		1	22	19	22	19	25	W5771_21	D39392_3	258	5	Detected
38	RNC0258	5771 U15867B	0.80	True/False	24	6.08%		0	22	19	22	19	24	W5771_21	D39799_3	258	6	Missing
39	RNC0258	5771 U15867B	0.29	False/False	21	5.32%		1	22	19	22	19	21	W5771_21	D32488_3	258	7	Detected
40	RNC0258	5771 U15867B	0.61	True/False	20	5.06%		1	22	19	22	19	20	W5771_21	D2320_1	258	8	Detected
41	RNC0258	5771 U15867B	0.29	False/False	20	5.06%		1	22	19	22	19	20	W5771_21	D2028_2	258	9	Detected
42	RNC0258	5771 U15867B	0.34	False/True	18	4.56%		1	22	19	22	19	18	W5771_21	D1984_3	258	10	Detected
43	RNC0258	5771 U15867B	0.00	False/True	17	4.30%		1	22	19	22	19	17	W5771_21	D1677_1	258	11	Detected
44	RNC0258	5771 U15867B	0.79	False/True	14	3.54%		0	22	19	22	19	14	W5771_21	D3308_2	258	12	Missing
45	RNC0258	5771 U15867B	0.42	False/True	12	3.04%		1	22	19	22	19	12	W5771_21	D30110_2	258	13	Detected
46	RNC0258	5771 U15867B	0.29	False/False	11	2.78%		1	22	19	22	19	11	W5771_21	D2029_3	258	14	Detected

Example of the **Summary Drive test Neighbors (Overshooters) Optimisation** report (written at the end of the data):

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Source RNC	Source LocalCID	Source CellName	Source SC	Source EcNoAvg	Source EcNoMin	Source EcNoMax	Source DistAvg [Km]	Source DistMin [Km]	Source DistMax [Km]	Target LAC	Target LocalCID	Target CellName	Target BCCH	Target RSSIAvg	Target RSSIMin	Target RSSIMax	Target DistAvg [Km]
1																		
3920	RNC1207	2983	U15064B	239	-5.8	-5.8	-5.8	0.27	0.27	0.27	306	39716	C15023C	770	-96.0	-96.0	-96.0	1.12
3921	RNC1207	2983	U15064B	239	-5.2	-5.2	-5.2	0.24	0.24	0.24	10	30153	C10938A	786	-84.5	-84.5	-84.5	0.17
3922																		
3923	Agileto => www.agileto.com © 2012 All rights reserved (support@agileto.com) [M4.1 V4.56] => Network Optimisation based on Drive Tests (*.csv)																	
3924	User Login: Admin Run Time: 19Oct2009 07:04:04-07:04:35 [31sec]																	
3925	Input Drive Test measurement file: D:\Agileto\ATT\Drive_Tests\DT_Measurements\SCANNER_EXPORT_F1_GSM_20090623.csv																	
3926	Input OMC Snapshot file: NO_INPUT_PROVIDED																	
3927	Input Agileto database reference file: D:\Agileto\ATT\MobileNW_Config\MobileNW_Config.xls																	
3928	Input 2G network OMC export file: Last updated today: 18Oct2009 01:59, 2G cells updated from 2G 'External' Excel file: D:\Agileto\ATT\MobileNW_Config\MobileNW_External_DB\2G_DRF_NMC_CELL_20091018.xlsx																	
3929	Drive Test post-processing -> Option Selected: 3G -> 2G [InterRAT(GSM)]																	
3930	Source: 3G Frequency layer = 1, [2112.4MHz]																	
3931	Target: 2G [GSM] layer																	
3932	Source: Nr of BestServers = 7																	
3933	Target: Nr of BestServers = 71																	
3934	EcNo Min [dB]: -20																	
3935	RSCP Min [dBm]: -115																	
3936	Active Set (EcNo) Range (delta BestServer) for valid 'Best Servers' [dB]: 3																	
3937	Monitoring Set (EcNo) Range (delta BestServer) for valid Scanner measurements [dB]: 8																	
3938	GSM RSSI Min: -100																	
3939	Minimum Neighbors Imposed Weight [%]: 1.01																	
3940	Spatial binning operated: YES, -> bin size [m]: 10																	
3941	Output Drive Test Network Optimisation file: D:\Agileto\ATT\Drive_Tests\DT_Optimisation\Bin10m_SCANNER_EXPORT_F1_GSM_20090623-3G2G_F1GSM\Bin10m_SCANNER_EXPORT_F1_GSM_20090623-3G2G_F1GSM																	
3942																		
3943	1) Total number of INPUT lines detected into DRIVE TEST measurements file: 15462, Drive Test => 4H 17min, [100%]																	
3944	2) Total number of MOBILITY Drive Test measurements: 12787, Drive Test => 3H 33min, [82.70%]																	
3945	3) Total number of STATIC [No Mobility detected] Drive Test measurements: 2528, Drive Test => 0H 42min, [16.35%]																	
3946	4) Total number of INVALID GPS (Lat/Lon) lines: 21, Drive Test => 0H 0min, [0.14%]																	
3947	5) Total number of INVALID DRIVE TEST SOURCE measurements: 42, Drive Test => 0H 0min, [0.27%]																	
3948	6) Total number of INVALID DRIVE TEST TARGET measurements: 84, Drive Test => 0H 1min, [0.54%]																	
3949																		
3950	Total number of points resulted after spatial binning aggregation: 10140 (bin size[m]=10)																	

All the input/output information (data) is synthesized into the summary presented as per into the above screenshot.

Overshooters (Analysis and Optimisation):

This report (sheet) presents all the cells detected as “**overshooters**” following the principle that a combination **Source Cell -> Target Cell** is detected with some occurrences during the Drive Tests neighboring analysis but the reciprocally is not detected.

Example of the Drive test **Overshooters** report – Part 1:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	OS RNC (Overshoot er)	OS LocalCID	Overshoot r CellName	OS SC	OS EcNoAvg	OS EcNoMin	OS EcNoMax	OS DistAvg [Km]	OS DistMin [Km]	OS DistMax [Km]	Affected RNC	Affected LocalCID	Affected CellName	Affected SC	Affected EcNoAvg	Affected EcNoMin	Affected EcNoMax	Affected DistAvg [Km]	Affected DistMin [Km]	Affected DistMax [Km]
2	RNC0217	2105	U30035A	489	-18.3	-18.5	-18.2	6.71	6.71	6.71	RNC0217	170	U31494A	58	-14.2	-14.7	-13.6	2.06	2.05	2.07
3	RNC0217	2105	U30035A	489	-18.2	-19.4	-16.9	6.71	6.71	6.72	RNC0217	116	U30024B	480	-14.6	-15.0	-14.1	0.30	0.30	0.30
4	RNC0217	2105	U30035A	489	-19.2	-19.6	-18.8	5.06	5.05	5.07	RNC0014	2847	U33395C	332	-15.9	-16.3	-15.6	5.64	5.63	5.65
5	RNC0217	2105	U30035A	489	-18.2	-19.4	-16.9	6.71	6.71	6.72	RNC0217	164	U31489A	275	-14.1	-14.1	-14.0	0.37	0.36	0.37
6	RNC0217	2105	U30035A	489	-15.8	-16.1	-15.4	3.68	3.30	4.06	RNC0014	3393	U30029B	84	-10.3	-11.6	-9.0	0.84	0.69	0.99
7	RNC0217	2105	U30035A	489	-18.8	-19.2	-18.5	6.72	6.71	6.72	RNC0217	100	U30004A	448	-15.9	-16.0	-15.8	1.86	1.86	1.87
8	RNC0217	2105	U30035A	489	-15.4	-15.4	-15.4	4.06	4.06	4.06	RNC0014	1259	U30034C	421	-9.0	-9.0	-9.0	0.77	0.77	0.77
9	RNC0217	2105	U30035A	489	-16.1	-16.1	-16.1	3.30	3.30	3.30	RNC0014	564	U30369B	208	-13.6	-13.6	-13.6	1.89	1.89	1.89
10	RNC0217	2105	U30035A	489	-19.6	-19.6	-19.6	5.05	5.05	5.05	RNC0014	1831	U31983A	415	-15.7	-15.7	-15.7	2.43	2.43	2.43
11	RNC0217	2105	U30035A	489	-16.7	-16.7	-16.7	4.85	4.85	4.85	RNC0014	269	U30022B	98	-10.3	-10.3	-10.3	0.31	0.31	0.31
12	RNC0217	2105	U30035A	489	-13.3	-13.3	-13.3	2.06	2.06	2.06	RNC0014	688	U30031C	428	-11.9	-11.9	-11.9	2.31	2.31	2.31
13	RNC0217	2105	U30035A	489	-18.4	-18.4	-18.4	2.27	2.27	2.27	RNC0014	3346	U32896C	77	-11.4	-11.4	-11.4	0.48	0.48	0.48
14	RNC0217	2105	U30035A	489	-16.1	-16.1	-16.1	3.30	3.30	3.30	RNC0014	2114	U31980A	374	-13.6	-13.6	-13.6	2.12	2.12	2.12
15	RNC0217	2105	U30035A	489	-16.1	-16.1	-16.1	3.30	3.30	3.30	RNC0014	684	U31500B	241	-11.6	-11.6	-11.6	1.06	1.06	1.06
16	RNC0217	2105	U30035A	489	-15.4	-15.4	-15.4	4.06	4.06	4.06	RNC0014	1257	U30034A	94	-9.0	-9.0	-9.0	0.77	0.77	0.77
17	RNC0014	655	U31508C	377	-9.3	-13.4	-5.3	0.14	0.10	0.17	RNC0217	654	U31508B	10	-6.3	-7.8	-5.3	0.14	0.10	0.17
18	RNC0014	655	U31508C	377	-15.8	-16.8	-14.8	1.13	1.13	1.13	RNC0217	518	U31479C	122	-8.6	-9.4	-7.8	0.40	0.40	0.40
19	RNC0014	655	U31508C	377	-14.8	-14.8	-14.8	1.13	1.13	1.13	RNC0217	253	U30007A	248	-9.2	-9.2	-9.2	0.42	0.42	0.42
20	RNC0014	655	U31508C	377	-17.4	-17.4	-17.4	3.65	3.65	3.65	RNC0217	577	U31488C	68	-14.5	-14.5	-14.5	0.30	0.30	0.30
21	RNC0014	655	U31508C	377	-16.5	-16.5	-16.5	4.23	4.23	4.23	RNC0217	105	U30005C	163	-9.2	-9.2	-9.2	0.77	0.77	0.77
22	RNC0014	655	U31508C	377	-18.7	-18.7	-18.7	4.34	4.34	4.34	RNC0014	664	U30026C	369	-15.1	-15.1	-15.1	4.85	4.85	4.85
23	RNC0014	655	U31508C	377	-17.4	-17.4	-17.4	3.65	3.65	3.65	RNC0014	503	U31997C	509	-14.6	-14.6	-14.6	2.10	2.10	2.10
24	RNC0014	655	U31508C	377	-16.5	-16.5	-16.5	4.23	4.23	4.23	RNC0217	166	U31490B	283	-11.0	-11.0	-11.0	0.11	0.11	0.11
25	RNC0014	655	U31508C	377	-16.5	-16.5	-16.5	4.23	4.23	4.23	RNC0217	139	U30084B	427	-11.9	-11.9	-11.9	0.83	0.83	0.83
26	RNC0014	655	U31508C	377	-18.7	-18.7	-18.7	4.34	4.34	4.34	RNC0217	164	U31489A	275	-16.8	-16.8	-16.8	0.39	0.39	0.39
27	RNC0217	655	U31508C	377	-18.3	-18.3	-18.3	5.57	5.57	5.57	RNC0217	4228	U31972B	331	-10.5	-10.5	-10.5	0.19	0.19	0.19
28	RNC0217	655	U31508C	377	-18.7	-18.7	-18.7	4.34	4.34	4.34	RNC0014	1002	U30511A	403	-16.4	-16.4	-16.4	3.42	3.42	3.42
29	RNC0217	10264	U30045B	383	-13.5	-17.5	-11.7	3.07	3.03	3.12	RNC0217	117	U30024C	370	-9.6	-11.9	-7.5	0.29	0.24	0.33
30	RNC0217	10264	U30045B	383	-13.5	-17.5	-11.7	3.07	3.03	3.12	RNC0217	164	U31489A	275	-9.7	-11.9	-7.5	0.70	0.67	0.74
31	RNC0217	10264	U30045B	383	-15.0	-16.9	-13.8	3.18	3.11	3.21	RNC0217	497	U30032C	293	-9.2	-10.7	-8.2	0.34	0.24	0.39
32	RNC0217	10264	U30045B	383	-15.6	-17.2	-13.0	3.00	2.94	3.03	RNC0217	30087	U32991A	474	-9.4	-11.2	-7.6	0.56	0.53	0.61
33	RNC0217	10264	U30045B	383	-15.3	-16.9	-13.9	3.20	3.20	3.21	RNC0217	496	U30032B	300	-8.8	-9.5	-8.2	0.38	0.35	0.39
34	RNC0217	10264	U30045B	383	-15.0	-15.6	-14.5	3.10	2.99	3.20	RNC0217	30088	U32991B	475	-9.3	-13.0	-7.6	0.48	0.40	0.56
35	RNC0217	10264	U30045B	383	-17.2	-17.6	-16.8	2.69	2.15	2.97	RNC0217	1000	U30099B	461	-11.6	-12.4	-10.5	1.12	0.69	1.35
36	RNC0217	10264	U30045B	383	-15.6	-15.6	-15.6	3.01	3.01	3.01	RNC0217	675	U33393B	86	-8.8	-8.8	-8.8	2.69	2.69	2.69
37	RNC0217	10264	U30045B	383	-13.8	-13.8	-13.8	3.26	3.26	3.26	RNC0217	176	U31504A	299	-8.8	-8.8	-8.8	0.62	0.62	0.62
38	RNC0217	10264	U30045B	383	-13.8	-13.8	-13.8	3.26	3.26	3.26	RNC0217	179	U32848A	371	-8.8	-8.8	-8.8	0.56	0.56	0.56
39	RNC0217	10264	U30045B	383	-13.8	-13.8	-13.8	3.26	3.26	3.26	RNC0217	119	U30025B	12	-8.8	-8.8	-8.8	0.35	0.35	0.35
40	RNC0217	10264	U30045B	383	-17.6	-17.6	-17.6	2.15	2.15	2.15	RNC0217	2878	U30556B	294	-11.9	-11.9	-11.9	1.01	1.01	1.01
41	RNC0217	682	U30014C	466	-18.8	-19.7	-18.2	4.09	4.05	4.12	RNC0014	664	U30026C	369	-16.6	-19.0	-15.1	4.83	4.79	4.87
42	RNC0217	682	U30014C	466	-18.8	-19.7	-18.2	4.09	4.05	4.12	RNC0014	1002	U30511A	403	-16.2	-17.8	-14.4	3.41	3.39	3.42

Example of the Drive test **Overshooters** report – Part 2:

1	2	3	17	18	19	20	21	22	23	24	25	26	27	28	29	30
OS RNC (Overshoot er)	OS LocalCID	Overshoot r CellName	Affected EcNoMax	Affected DistAvg [Km]	Affected DistMin [Km]	Affected DistMax [Km]	OS Number	Nr of Cells Affected per OS	Nr of Occurrences	Distance OS - Affected [Km]	O<->A Inside_BW ? [O<-A / A<-O]	Cell Overshoot er	Cell Affected	RNC Overshoot er	RNC Affected	Cell Affected order
2	RNC0217	2105 U30035A	-13.6	2.06	2.05	2.07	1	15	2	6.73	True/False	W2105_11	W170_11	217	217	1
3	RNC0217	2105 U30035A	-14.1	0.30	0.30	0.30	1	15	2	6.92	True/True	W2105_11	W116_21	217	217	2
4	RNC0217	2105 U30035A	-15.6	5.64	5.63	5.65	1	15	2	1.65	False/False	W2105_11	W2847_31	217	14	3
5	RNC0217	2105 U30035A	-14.0	0.37	0.36	0.37	1	15	2	6.95	True/False	W2105_11	W164_11	217	217	4
6	RNC0217	2105 U30035A	-9.0	0.84	0.69	0.99	1	15	2	3.81	True/False	W2105_11	W3393_21	217	14	5
7	RNC0217	2105 U30035A	-15.8	1.86	1.86	1.87	1	15	2	5.90	True/False	W2105_11	W100_11	217	217	6
8	RNC0217	2105 U30035A	-9.0	0.77	0.77	0.77	1	15	1	4.15	False/True	W2105_11	W1259_31	217	14	7
9	RNC0217	2105 U30035A	-13.6	1.89	1.89	1.89	1	15	1	3.30	True/False	W2105_11	W564_21	217	14	8
10	RNC0217	2105 U30035A	-15.7	2.43	2.43	2.43	1	15	1	3.90	False/False	W2105_11	W1831_11	217	14	9
11	RNC0217	2105 U30035A	-10.3	0.31	0.31	0.31	1	15	1	5.16	False/True	W2105_11	W269_21	217	14	10
12	RNC0217	2105 U30035A	-11.9	2.31	2.31	2.31	1	15	1	2.25	True/False	W2105_11	W688_31	217	14	11
13	RNC0217	2105 U30035A	-11.4	0.48	0.48	0.48	1	15	1	2.46	False/True	W2105_11	W3346_31	217	14	12
14	RNC0217	2105 U30035A	-13.6	2.12	2.12	2.12	1	15	1	1.47	False/False	W2105_11	W2114_11	217	14	13
15	RNC0217	2105 U30035A	-11.6	1.06	1.06	1.06	1	15	1	2.70	True/False	W2105_11	W684_21	217	14	14
16	RNC0217	2105 U30035A	-9.0	0.77	0.77	0.77	1	15	1	4.15	False/False	W2105_11	W1257_11	217	14	15
17	RNC0014	655 U31508C	-5.3	0.14	0.10	0.17	2	12	10	0.00	False/False	W655_31	W654_21	14	217	1
18	RNC0014	655 U31508C	-7.8	0.40	0.40	0.40	2	12	2	0.73	False/False	W655_31	W518_31	14	217	2
19	RNC0014	655 U31508C	-9.2	0.42	0.42	0.42	2	12	1	1.47	True/False	W655_31	W253_11	14	217	3
20	RNC0014	655 U31508C	-14.5	0.30	0.30	0.30	2	12	1	3.72	False/False	W655_31	W577_31	14	217	4
21	RNC0014	655 U31508C	-9.2	0.77	0.77	0.77	2	12	1	3.52	True/False	W655_31	W105_31	14	217	5
22	RNC0014	655 U31508C	-15.1	4.85	4.85	4.85	2	12	1	1.01	False/False	W655_31	W664_31	14	14	6
23	RNC0014	655 U31508C	-14.6	2.10	2.10	2.10	2	12	1	2.24	False/False	W655_31	W503_31	14	14	7
24	RNC0014	655 U31508C	-11.0	0.11	0.11	0.11	2	12	1	4.33	True/False	W655_31	W166_21	14	217	8
25	RNC0014	655 U31508C	-11.9	0.83	0.83	0.83	2	12	1	3.85	False/False	W655_31	W139_21	14	217	9
26	RNC0014	655 U31508C	-16.8	0.39	0.39	0.39	2	12	1	4.31	False/False	W655_31	W164_11	14	217	10
27	RNC0217	655 U31508C	-10.5	0.19	0.19	0.19	2	12	1	5.64	True/False	W655_31	W4228_21	217	217	11
28	RNC0217	655 U31508C	-16.4	3.42	3.42	3.42	2	12	1	5.36	True/False	W655_31	W1002_11	217	14	12
29	RNC0217	10264 U30045B	-7.5	0.29	0.24	0.33	3	12	10	3.36	True/False	W10264_21	W117_31	217	217	1
30	RNC0217	10264 U30045B	-7.5	0.70	0.67	0.74	3	12	10	3.65	True/False	W10264_21	W164_11	217	217	2
31	RNC0217	10264 U30045B	-8.2	0.34	0.24	0.39	3	12	8	3.24	True/True	W10264_21	W497_31	217	217	3
32	RNC0217	10264 U30045B	-7.6	0.56	0.53	0.61	3	12	7	3.38	True/True	W10264_21	W30087_11	217	217	4
33	RNC0217	10264 U30045B	-8.2	0.38	0.35	0.39	3	12	6	3.24	True/False	W10264_21	W496_21	217	217	5
34	RNC0217	10264 U30045B	-7.6	0.48	0.40	0.56	3	12	4	3.38	True/False	W10264_21	W30088_21	217	217	6
35	RNC0217	10264 U30045B	-10.5	1.12	0.69	1.35	3	12	3	1.90	True/False	W10264_21	W1000_21	217	217	7
36	RNC0217	10264 U30045B	-8.8	2.69	2.69	2.69	3	12	1	2.53	False/False	W10264_21	W675_21	217	217	8
37	RNC0217	10264 U30045B	-8.8	0.62	0.62	0.62	3	12	1	2.68	True/False	W10264_21	W176_11	217	217	9
38	RNC0217	10264 U30045B	-8.8	0.56	0.56	0.56	3	12	1	3.79	True/False	W10264_21	W179_11	217	217	10
39	RNC0217	10264 U30045B	-8.8	0.35	0.35	0.35	3	12	1	3.09	True/False	W10264_21	W119_21	217	217	11
40	RNC0217	10264 U30045B	-11.9	1.01	1.01	1.01	3	12	1	1.15	True/False	W10264_21	W2878_21	217	217	12
41	RNC0217	682 U30014C	-15.1	4.83	4.79	4.87	4	12	7	1.48	False/False	W682_31	W664_31	217	14	1
42	RNC0217	682 U30014C	-14.4	3.41	3.39	3.42	4	12	7	5.43	True/False	W682_31	W1002_11	217	14	2

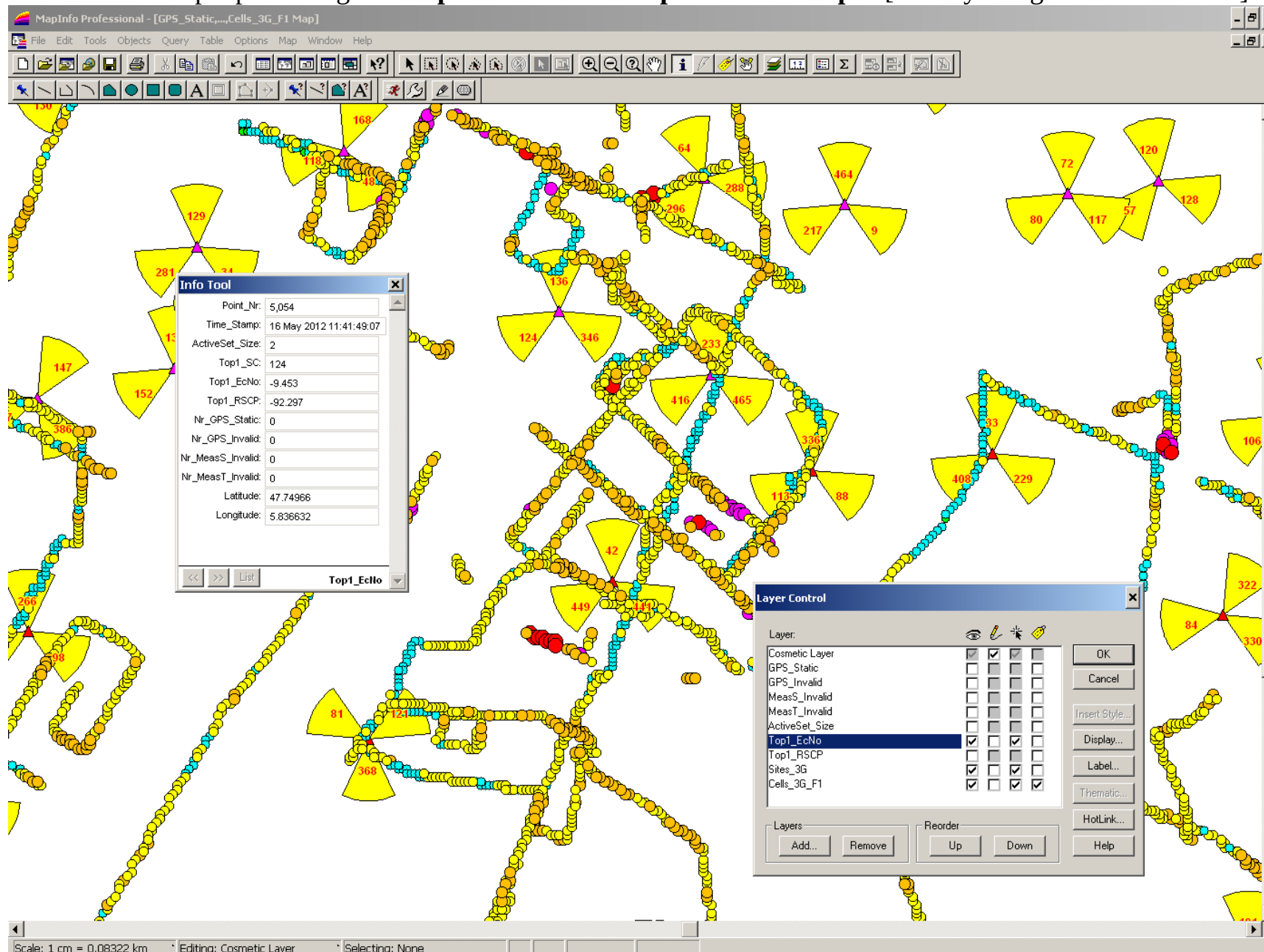
The screenshots presented above show some **overshooters** examples which should be interpreted as per the following definition regarding the “**overshooter**”:

- When the UE (mobile) was under the coverage of the “**Affected Cell**” during the drive test it has detected as well the signal coming from the “**Overshooter**” cell but when it moves away and the UE arrived under the coverage of the “**Overshooter**” cell it has no more detected the signal coming from the “**Affected Cell**” (reciprocity was no more detected).

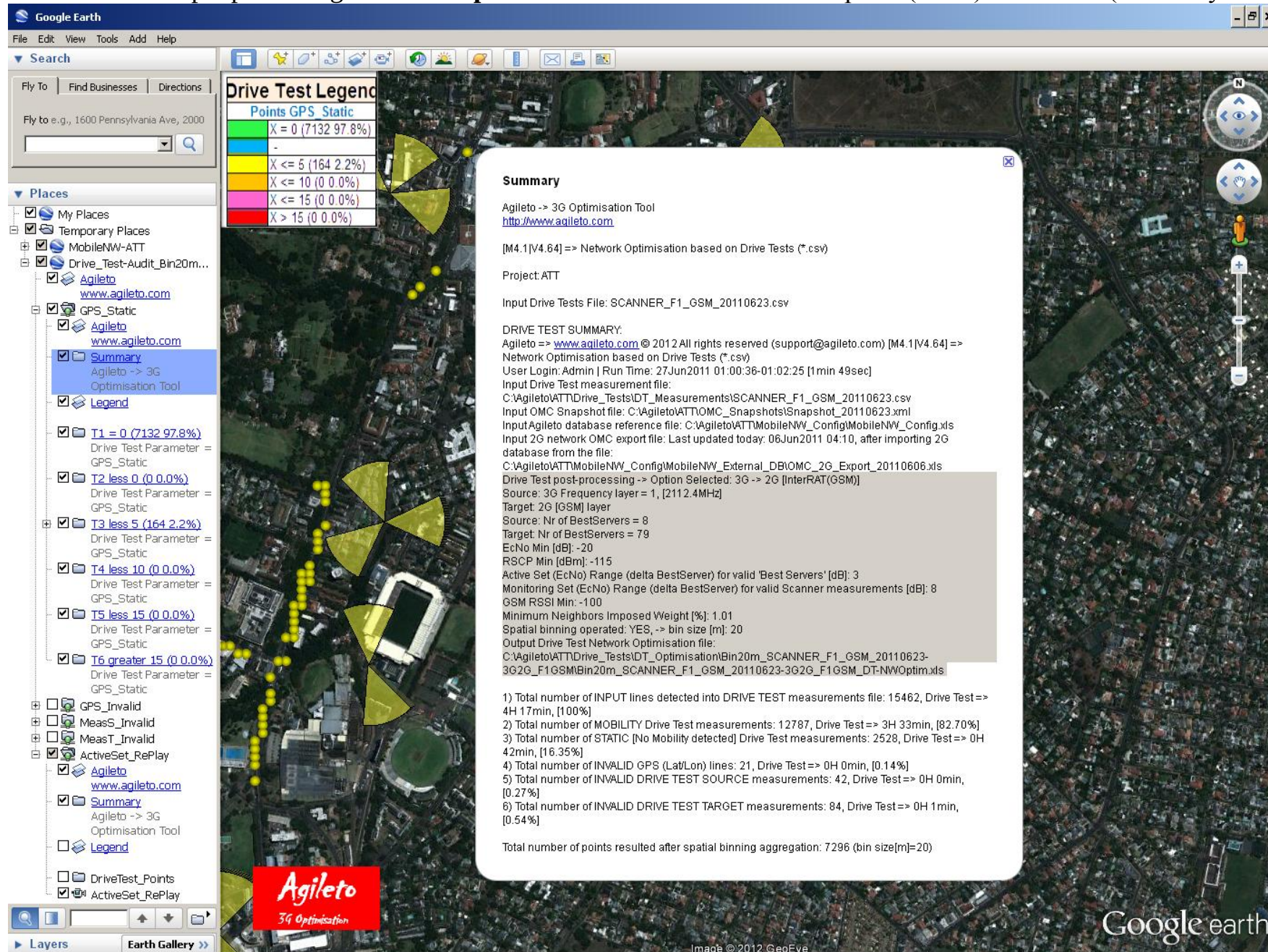
All the overshooters cells detected have been sorted in descending order based on the number of their associated “Affected Cells” and along one overshooter cell detected all its associated “Affected Cells” are sorted in descending order based on the number of occurrences (related to the combination detected **Affected Cell -> Overshooter Cell**). All these rules have been kept for the visual representation of the Overshooters into Google Earth environment, too.

The next screenshots will present some examples related to each special case which is generated by Agileto as automatically result after the analysis and optimization action has been completed; these cases are outputted into both MapInfo and Google Earth.

Screenshot example presenting the **MapInfo Drive Test Optimisation** output [seen by using the module M1.4]:



Screenshot example presenting the **GE output** when “**Load Audit results**” option (M1.4) is selected (Summary is available, too):



It may be possible to select any of the following outputs, as it may be seen into the previous screenshot; each metric presents the drive test points (positions and statistics) according to predefined ranges presented into the legend:

- **GPS_Static** -> points when static measurements are detected;
- **GPS_Invalid** -> points when invalid GPS measurements are detected (the previous valid chronological points are mapped for these cases);
- **MeasS_Invalid** -> points when invalid “**Source**” data measurements are detected (no data have been recorded from the device source [scanner/mobile] at that point (timestamp));
- **MeasT_Invalid** -> points when invalid “**Target**” data measurements are detected (no data have been recorded from the device target [scanner/mobile] at that point (timestamp));

To exemplify the above screenshot (**GPS_Static** case) please see below:

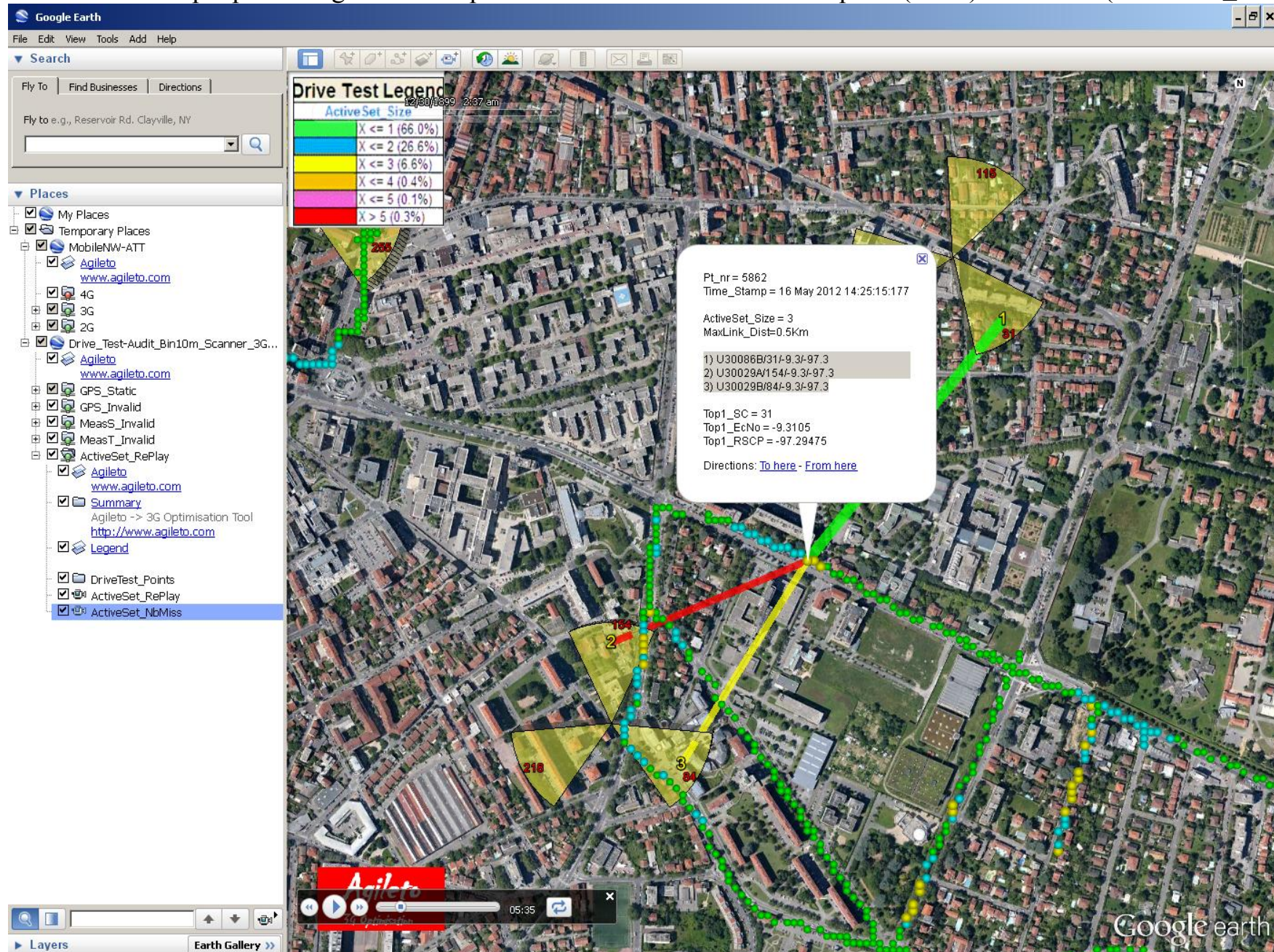
- **T1=0** (first range) -> **7132 points** from the total number of the drive test points (representing 97.8%) have been performed in mobility (no static cases);
- **T3<=5** (third range) -> **164 points** from the total number of the drive test points (representing 2.2%) have been performed in static conditions recording a number of up to 5 measurements detected into the same geographically position; these static measurements points may be selected from the left side-bar (panel) in order to see how they are distributed along the drive test.

Additionally to the above four (4) mentioned outputs (when “**Load Audit results**” option (M1.4) is selected) it is loaded into Google Earth (GE) the file named “**ActiveSet_RePlay.kmz**” which contains all the drive test points and the GE tours/movies (**ActiveSet_RePlay** & **ActiveSet_NbMiss**) presenting for each drive test point the “Active Set” lines (links) between the point and all the cells which should be included into the “Active Set” according with the Input parameter provided initially (**Active Set Delta [dB]**) and the Top_1 to Top_X best servers detected at that point after the spatial binning operation is performed (if selected).

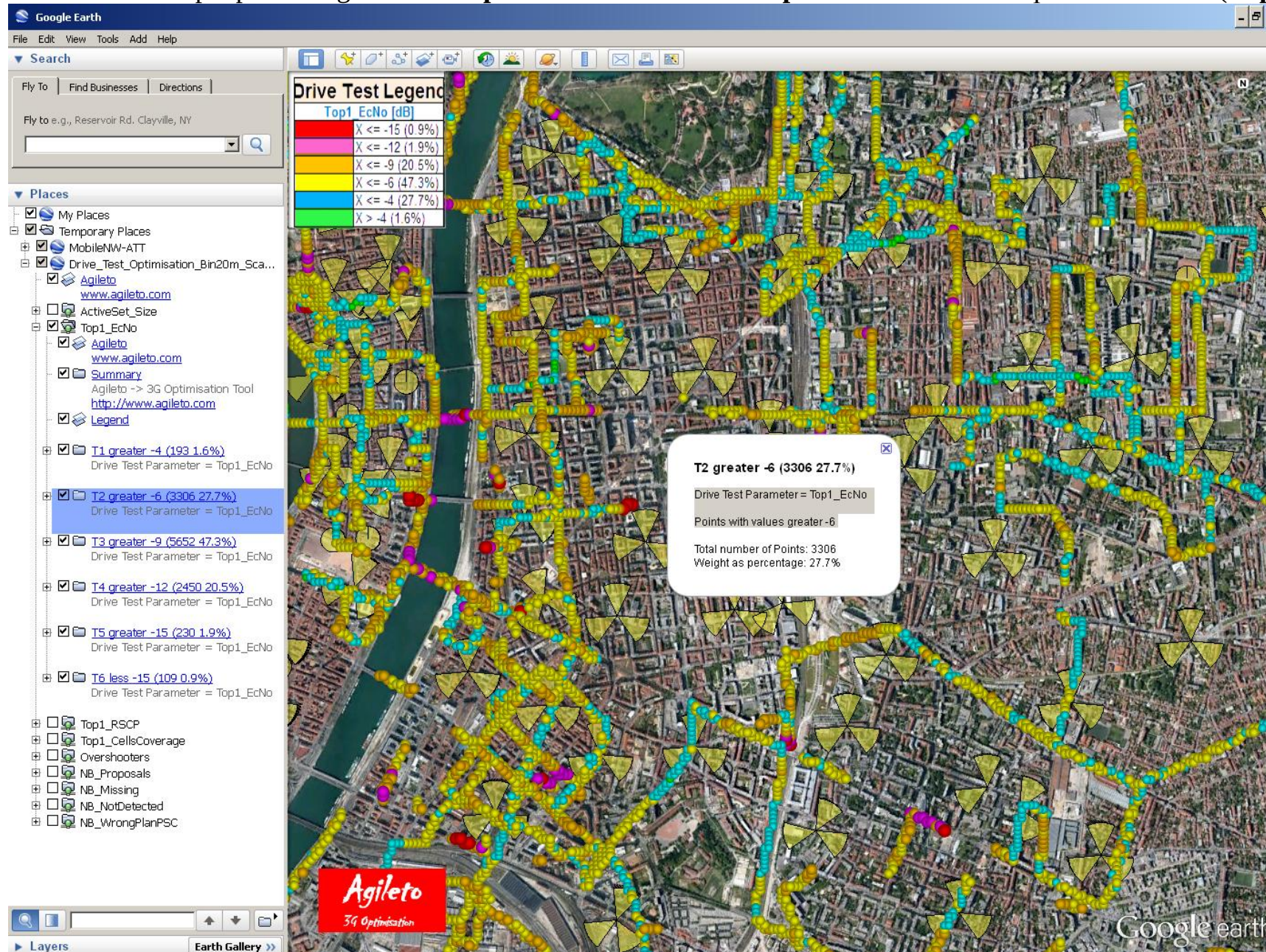
The legend colors for the “Active Set” lines will present always the **Top_1** best server with **green color** and all the others **Top_2** to **Top_X** best servers from the “Active Set” will be represented with the **yellow color**. In case that any of the Top_2 to Top_X best servers from the “Active Set” is not declared as neighbor with the Top_1 best server than that link (line) will be colored with the red color (see the example into the screenshot below). The collection of such of cases detected with missing neighbors from the “Active Set” are included into the second GE tour/movie named **ActiveSet_NbMiss** (as per it may be seen below).

The **GE tours/movies** (**ActiveSet_Replay** & **ActiveSet_NbMiss**) may be played with **forward/backward/pause/faster** options like any standard digital movie by using the dedicated Google Earth tool available into the lower left corner from the main screen.

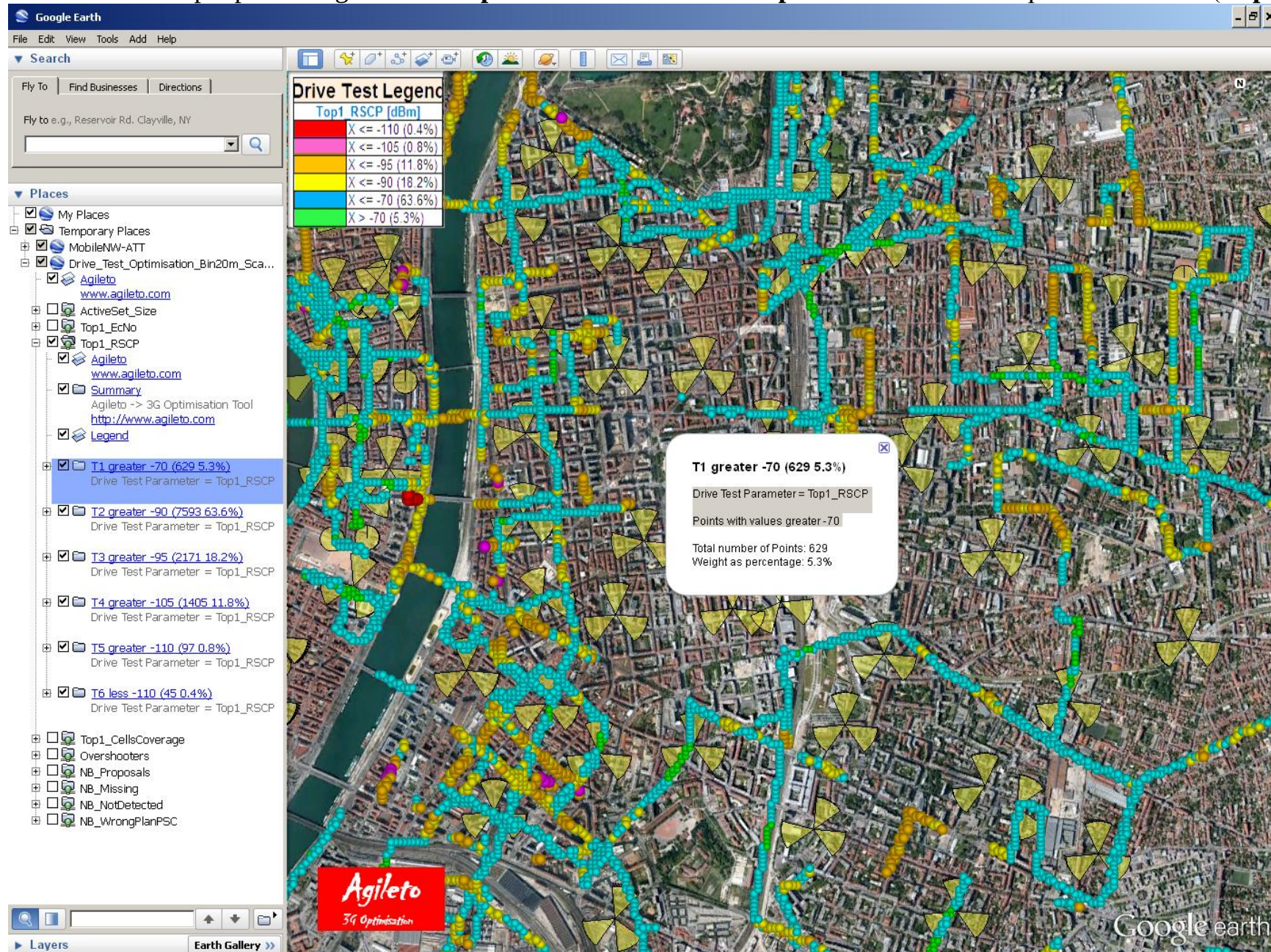
Screenshot example presenting the GE output when “**Load Audit results**” option (M1.4) is selected (**ActiveSet_NbMiss** tour/movie):



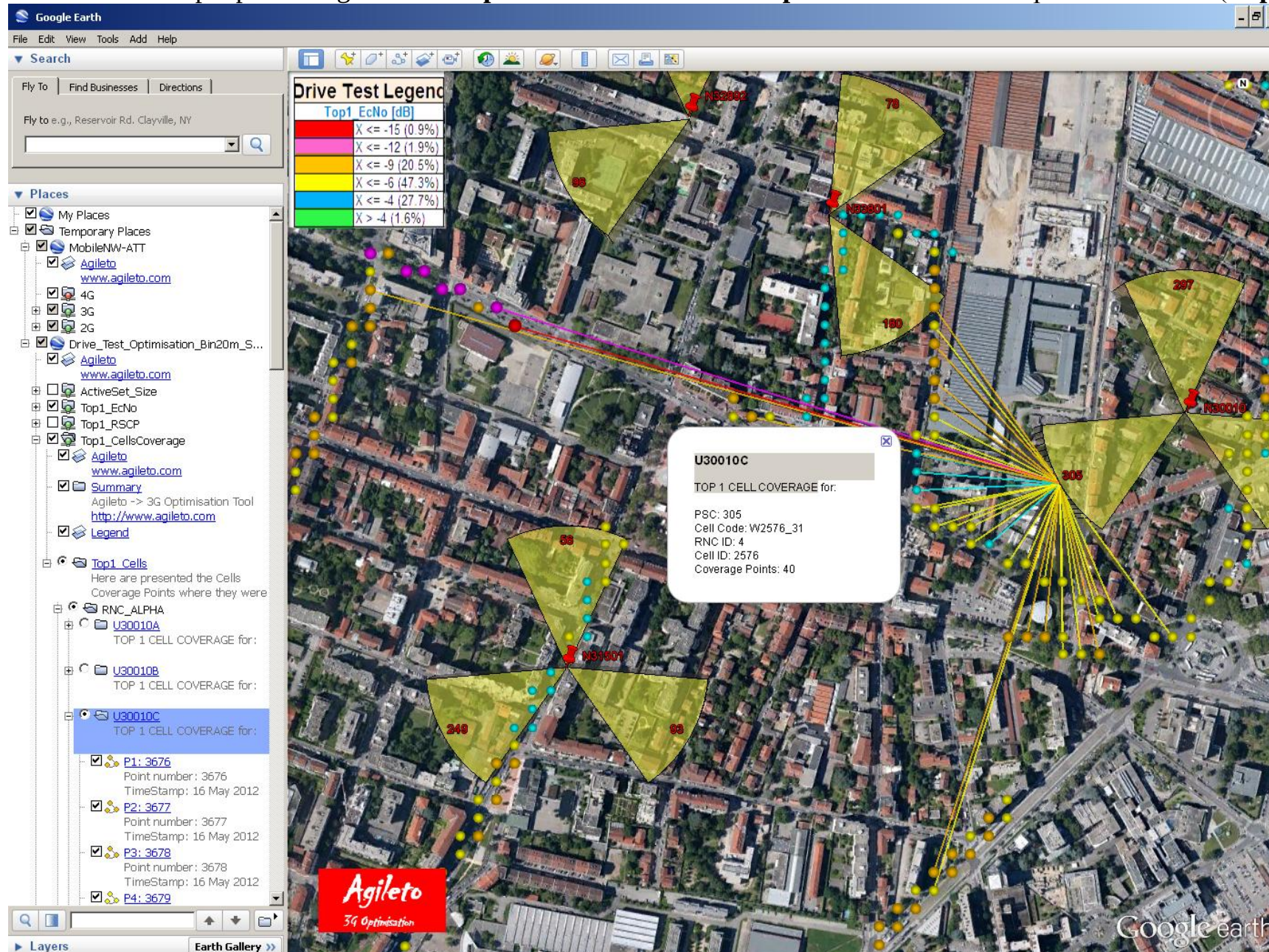
Screenshot example presenting the **GE output** when “**Load Main / Optimisation results**” option is selected (**Top1_EcNo**):



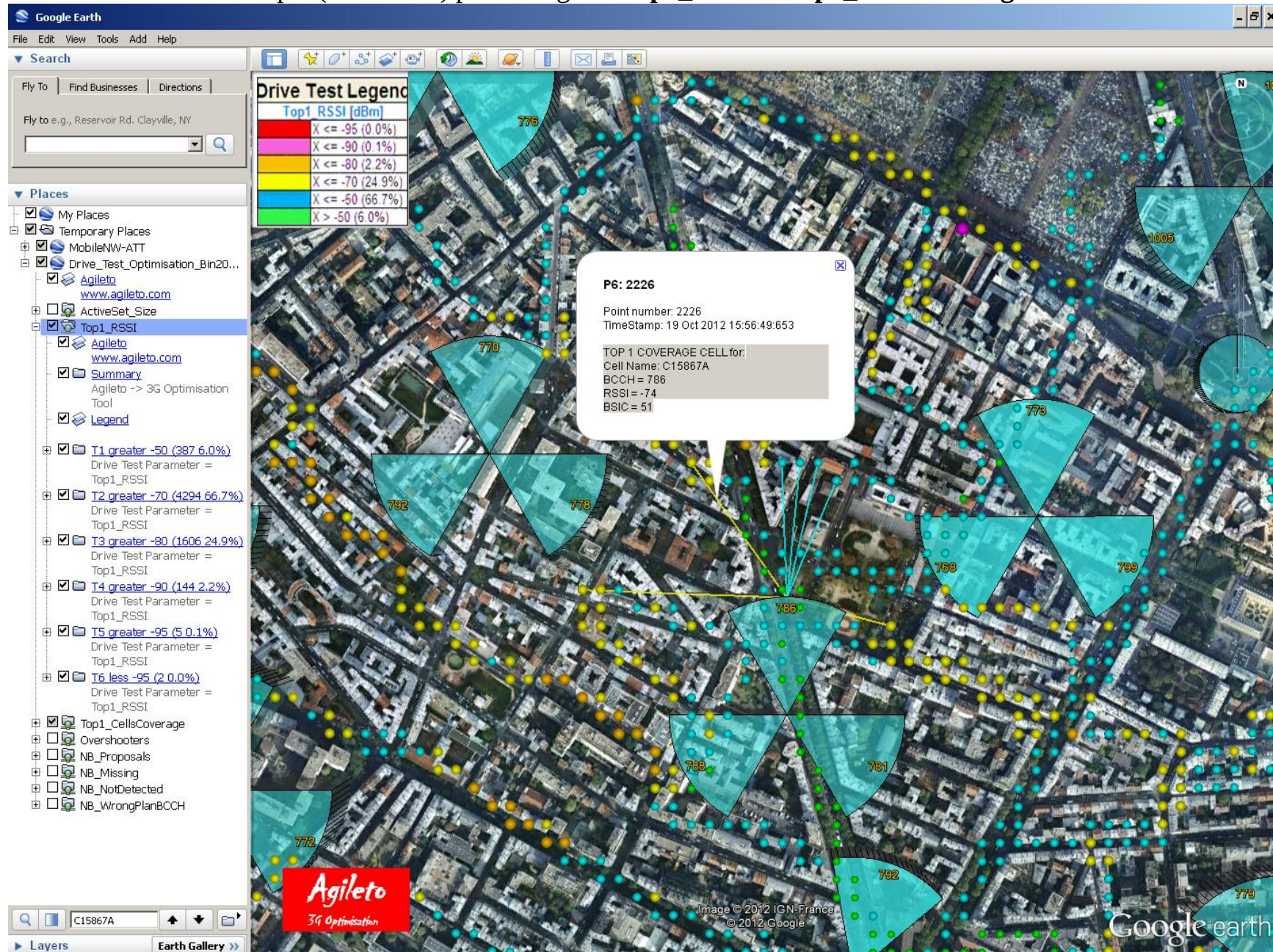
Screenshot example presenting the **GE output** when “**Load Main / Optimisation results**” option is selected (**Top1_RSCP**):



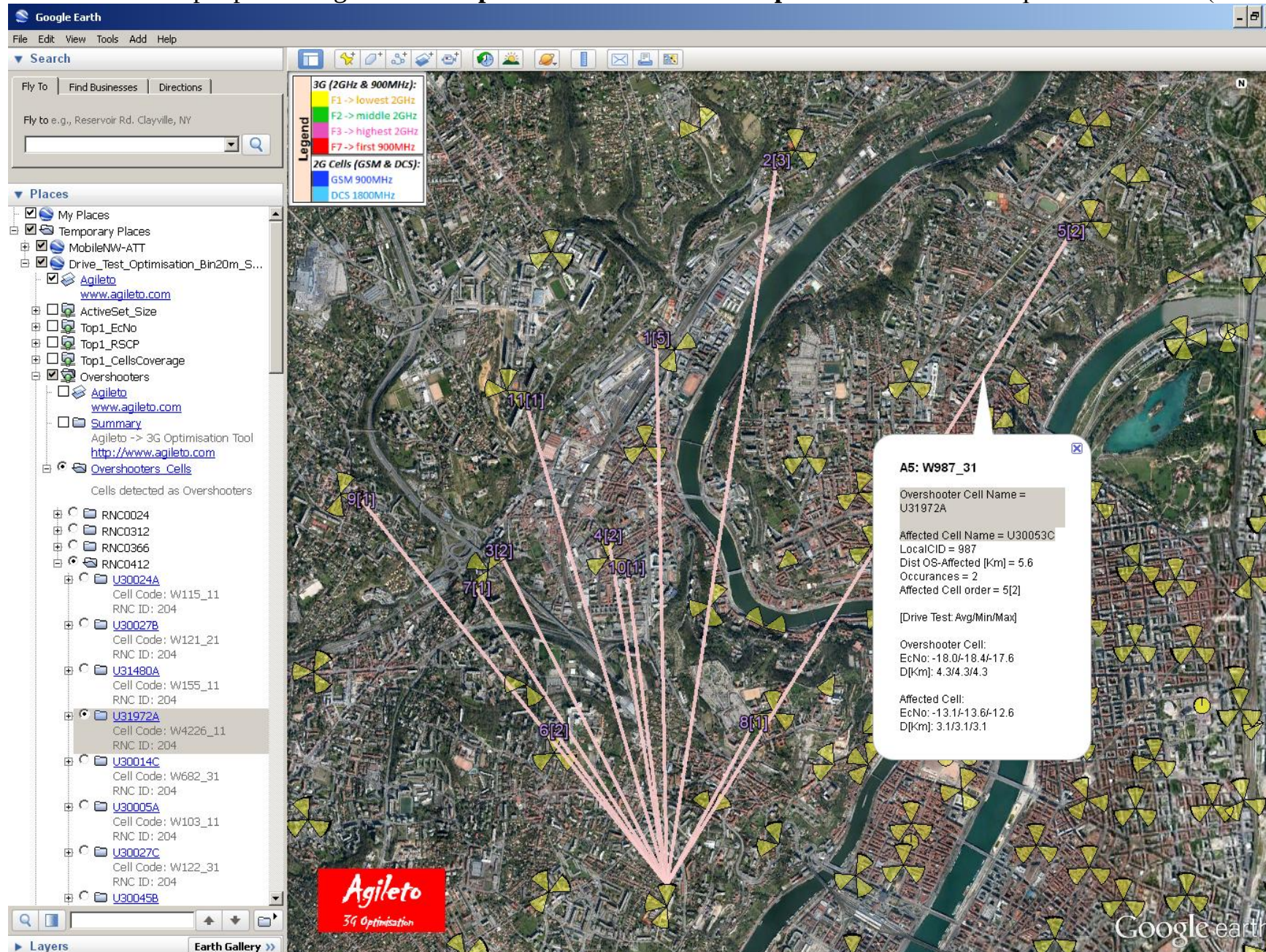
Screenshot example presenting the **GE output** when “**Load Main / Optimisation results**” option is selected (**Top1_CellsCoverage**):



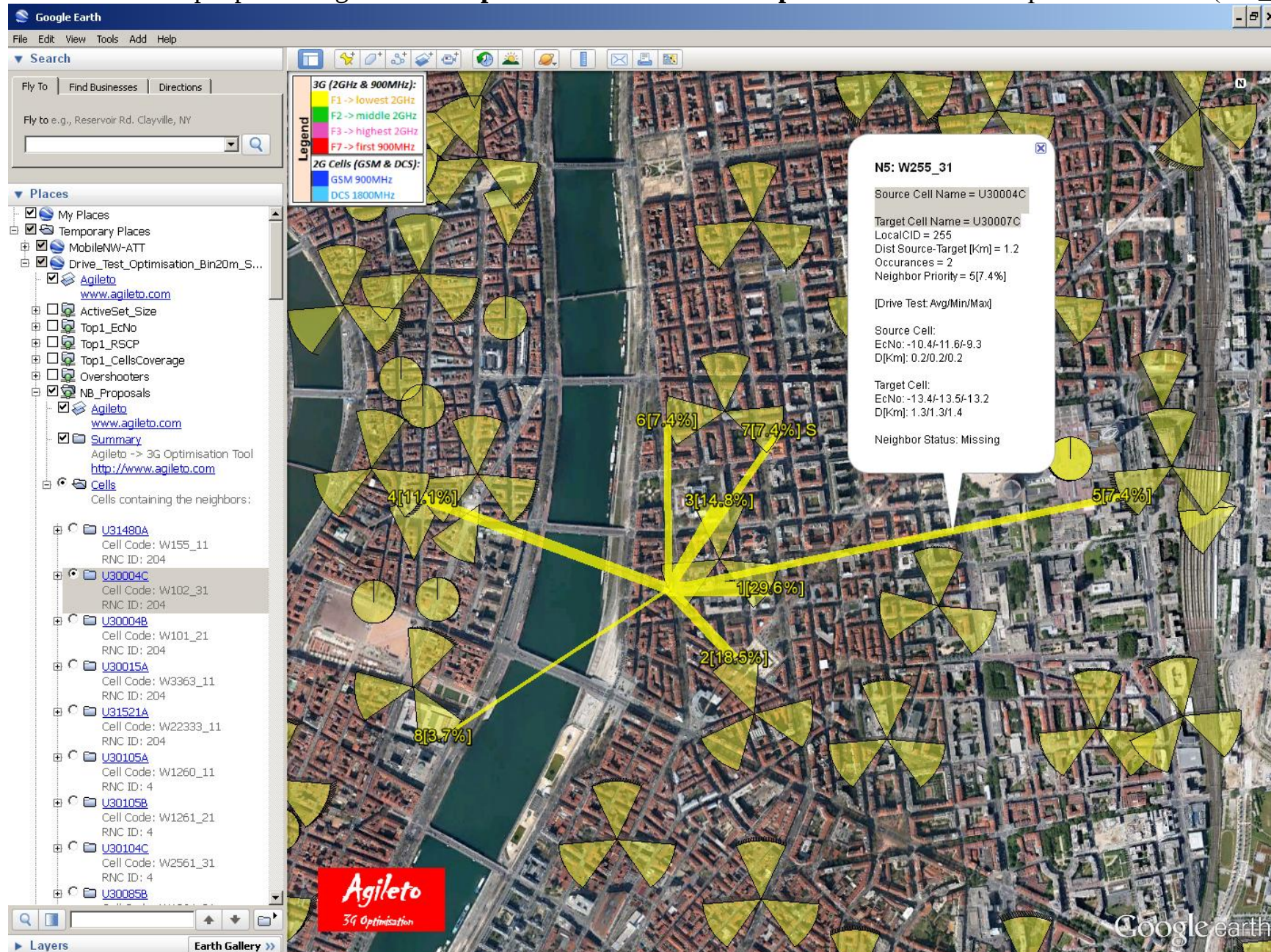
Similar screenshot example (like above) presenting the **Top1_RSSI + Top1_CellsCoverage** for an **2G Drive Test** case:



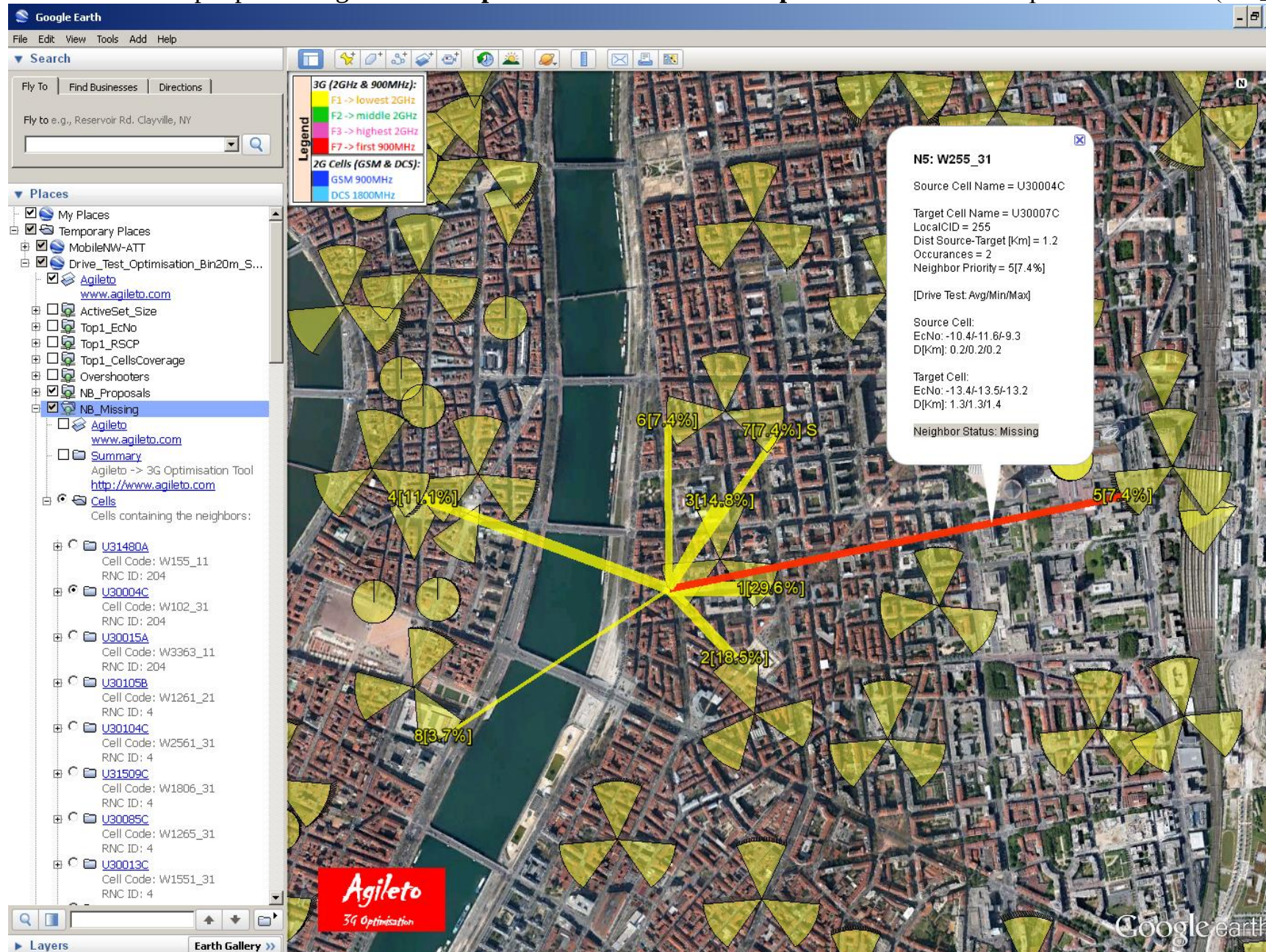
Screenshot example presenting the **GE output** when “**Load Main / Optimisation results**” option is selected (**Overshooters**):



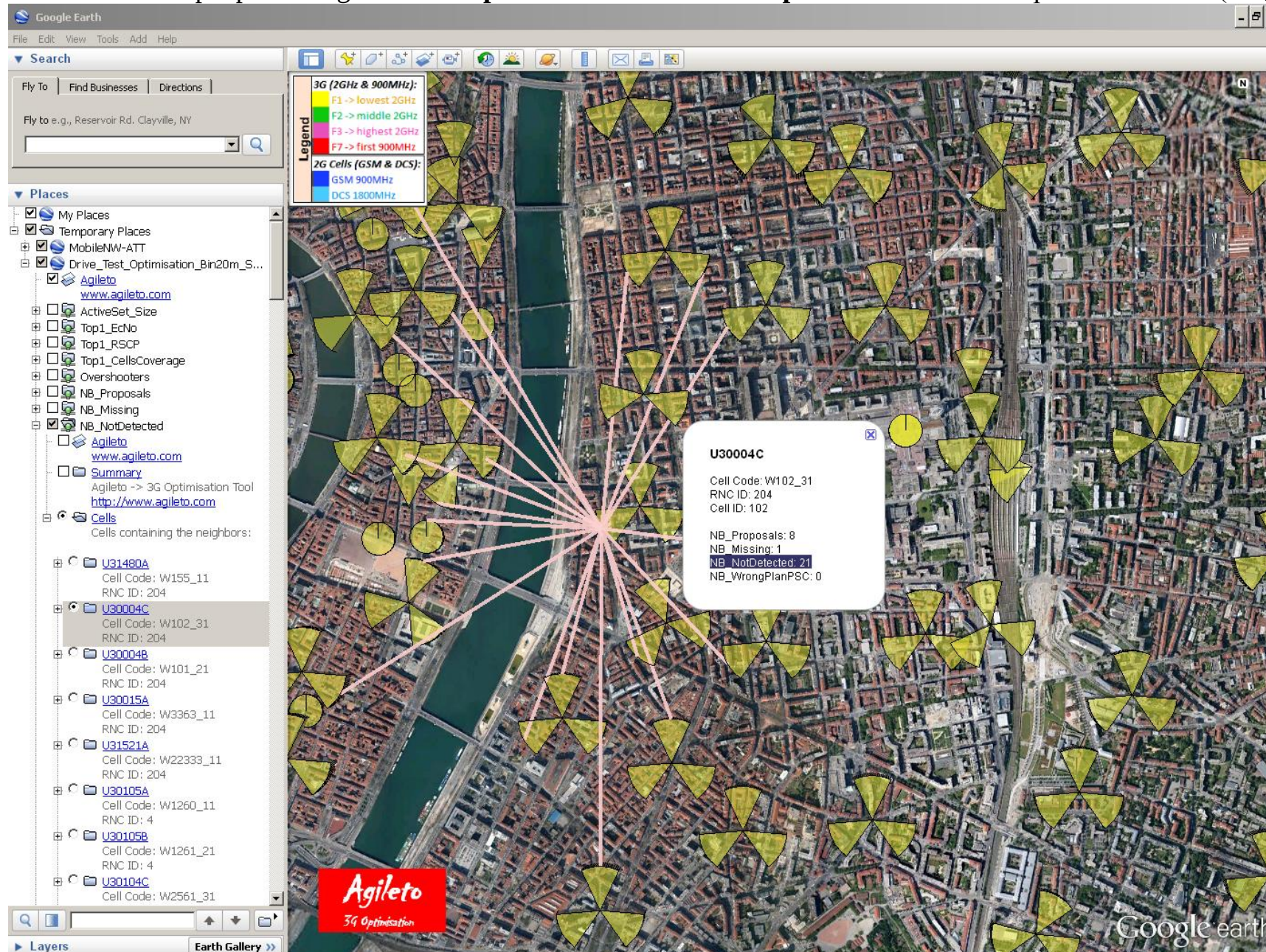
Screenshot example presenting the **GE output** when “**Load Main / Optimisation results**” option is selected (**NB_Proposals**):



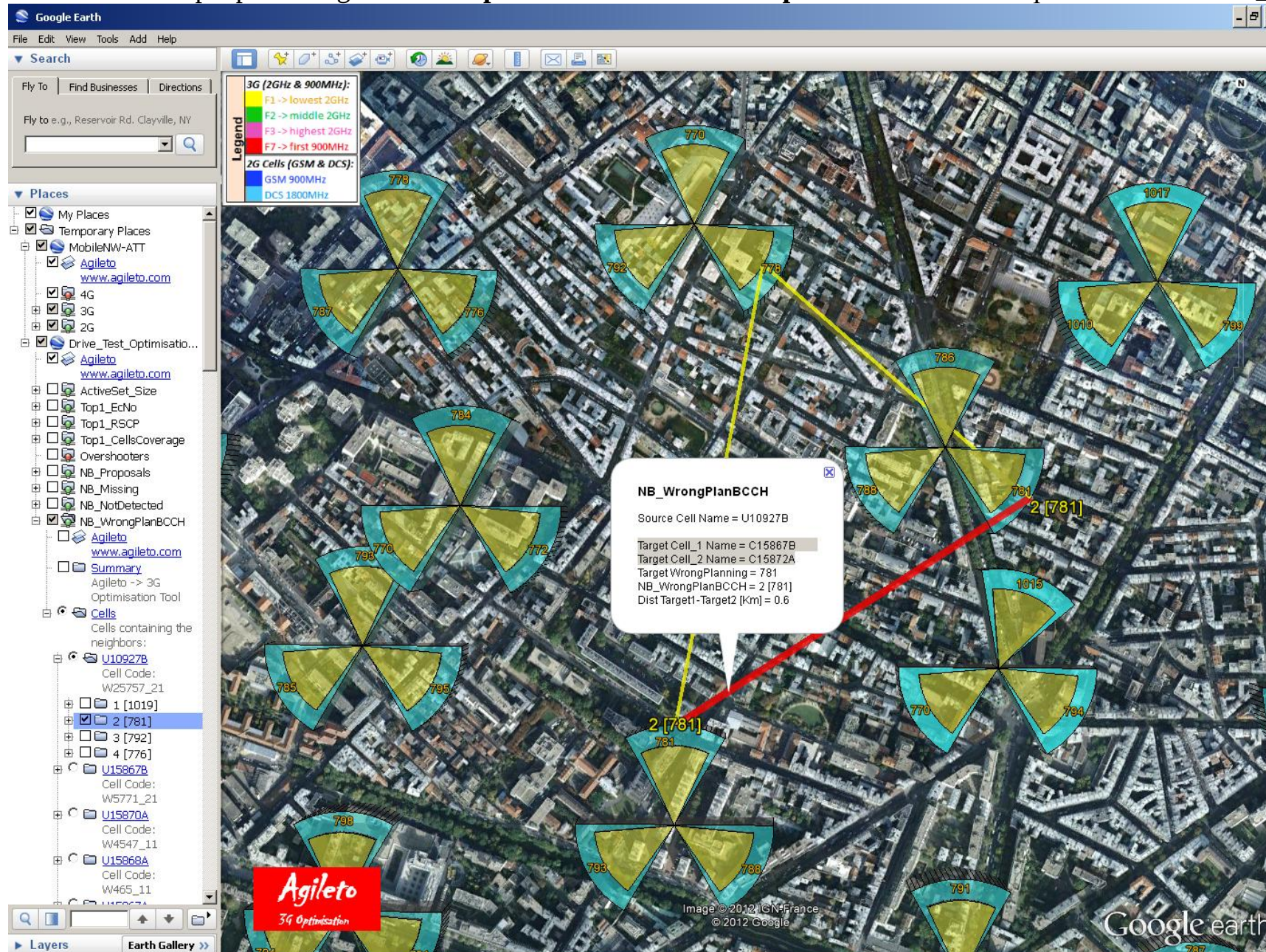
Screenshot example presenting the **GE output** when “**Load Main / Optimisation results**” option is selected (**NB_Missing**):



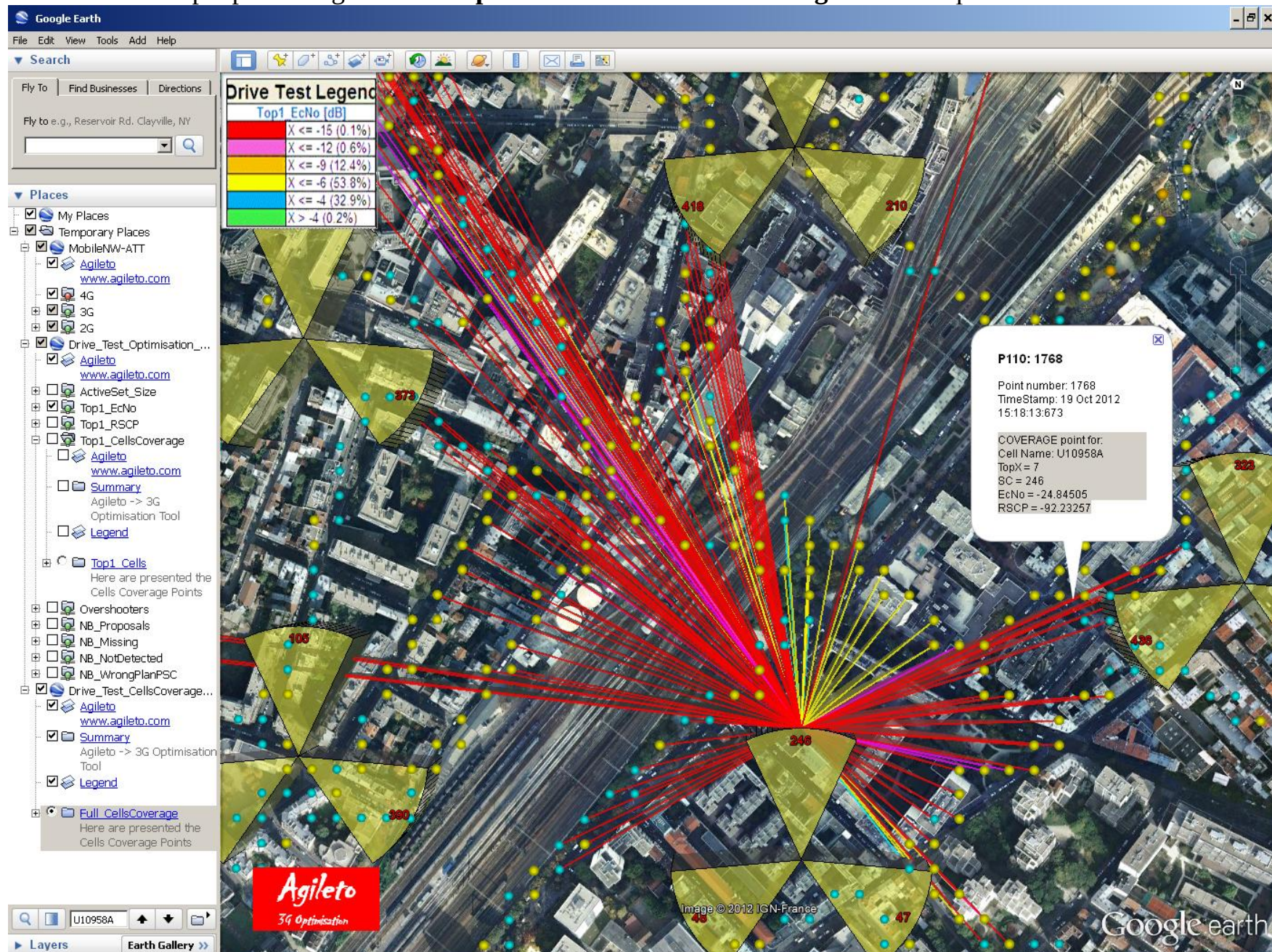
Screenshot example presenting the **GE output** when “**Load Main / Optimisation results**” option is selected (**NB_NotDetected**):



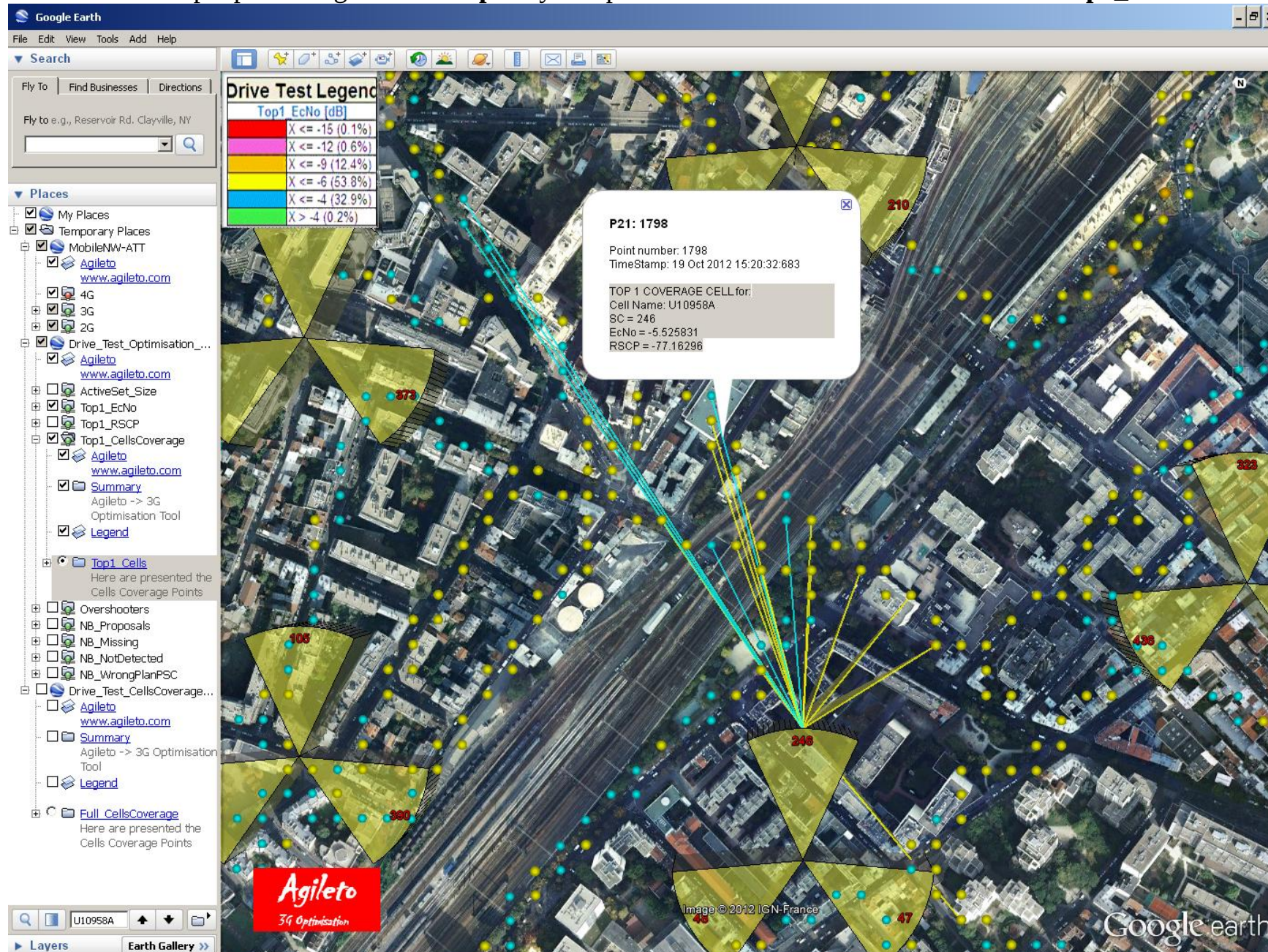
Screenshot example presenting the **GE output** when “**Load Main / Optimisation results**” option is selected **NB_WrongPlanBCCH**:



Screenshot example presenting the **GE output** when “**Load Cells Coverage results**” option is selected:



Screenshot example presenting the **GE output** by comparison with the above case the status of **Top1_CellsCoverage**:



Conclusions:

When Agileto has completed to post-process the **Drive Test Optimisation** option the RF Optimisation Engineer may proceed as following:

- Based on the **Neighbors** optimization report it has already the following outputs which may serve him/her to optimize straightway the neighbors declarations based on the data collected during the drive test:
 - ➔ **Neighbors Proposals** -> this is the final /optimal neighbors configuration proposed by Agileto for each cell based on the drive test measurements data;
 - ➔ **Neighbors Missing** -> these are the neighbors proposals which have not been yet declared as neighbors (they should be added as neighbors);
 - ➔ **Neighbors NotDetected** -> these are the neighbors declared into the network which have not been detected during the drive test or which have been detected with a low number of occurrences (the weight was lower than the imposed threshold); these neighbors are candidates for the list of deletion but this will be made with caution (based on their visually representation in Google Earth) due to the particular drive test routes/ways which may lead to false decisions in case the drive test was not performed dense enough into that specific area.
- Based on the **Overshooters** report it may analyze directly into Google Earth all the overshooters detected (already sorted out since the most important overshooter detected up to the less important overshooter detected by their corresponding number of “Affected Cells”); if necessary, the suitable antennas downtilt proposals should be provided for the shortlisted overshooters selected and verified.
 - ➔ To complete this analysis it may make usage of the representation into Google Earth of the **Top1_CellsCoverage** as well as of the **CellsCoverage** by checking where the overshooters cells have been detected as the Top_1 best server and where it was detected for the total “coverage” during the drive test (the coverage lines will indicate the coverage areas and the color lines will indicated the signal strength).
- Another important optimization output is the list of the cases detected / flagged by Agileto with **Wrong planning PSC (3G) / BCCH (2G)**; these are the cases collected when a “source” cell is detected to be in potential neighboring relationship with at least two different “target” cells which share the same PSC (3G) or BCCH (2G). These cases have been represented by Agileto in Google Earth and based on their quick visual check it may be decided if the PSC/BCCH allocation should be (re)planned again for those specific cells (for this last purpose of PSC (re)allocation it may be used the module M2.2/M2.3).

The drive test optimization actions presented above may be doubled / completed by the optimization actions based on the Call Traces, as they will be described into the next chapter.

4.2) Network Optimisation based on Call Traces

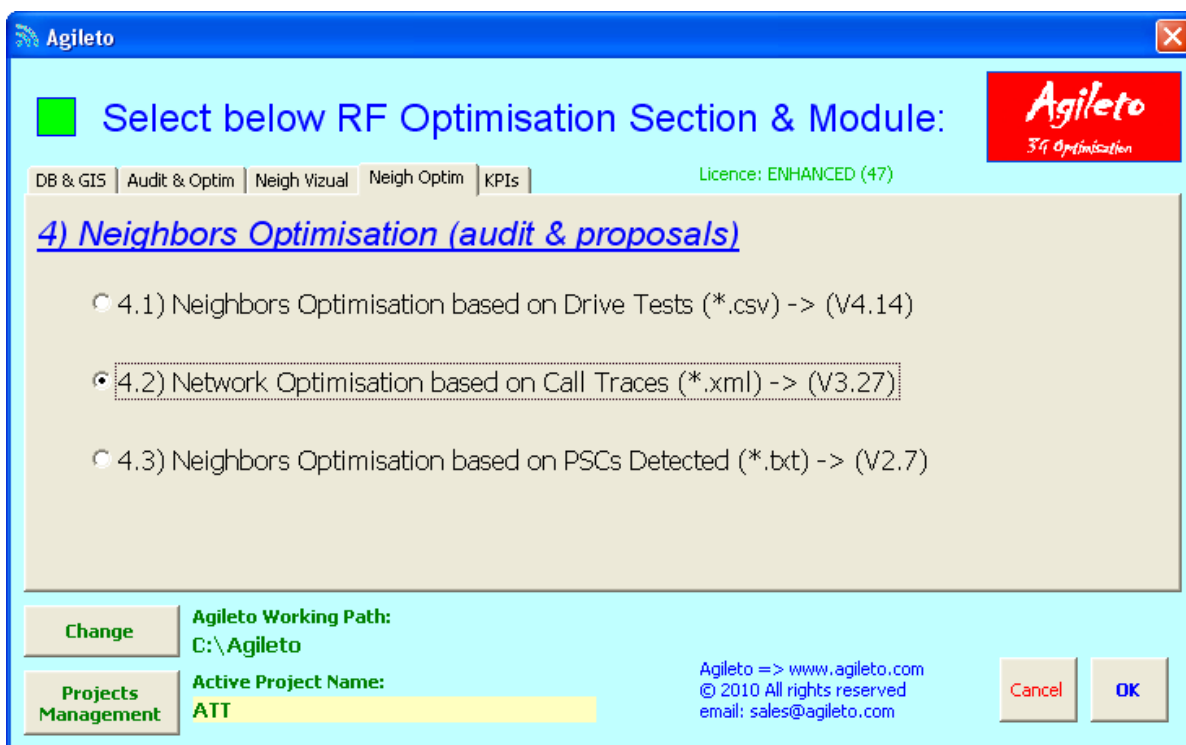
The purpose and the target of this module is to provide (automatically - without human manual intervention - by using SON [Self Optimized Network] principles) the Network optimization actions (with focus on neighbors and overshooters) necessary to be performed into the 3G network (3G-3G IntraFrequency + InterFrequency + 3G-2G InterRat) based on the real signalization data exchanged over the 3G network and collected for a limited period of time into the Call Traces files.

The major three advantages of using this module for network optimizations are:

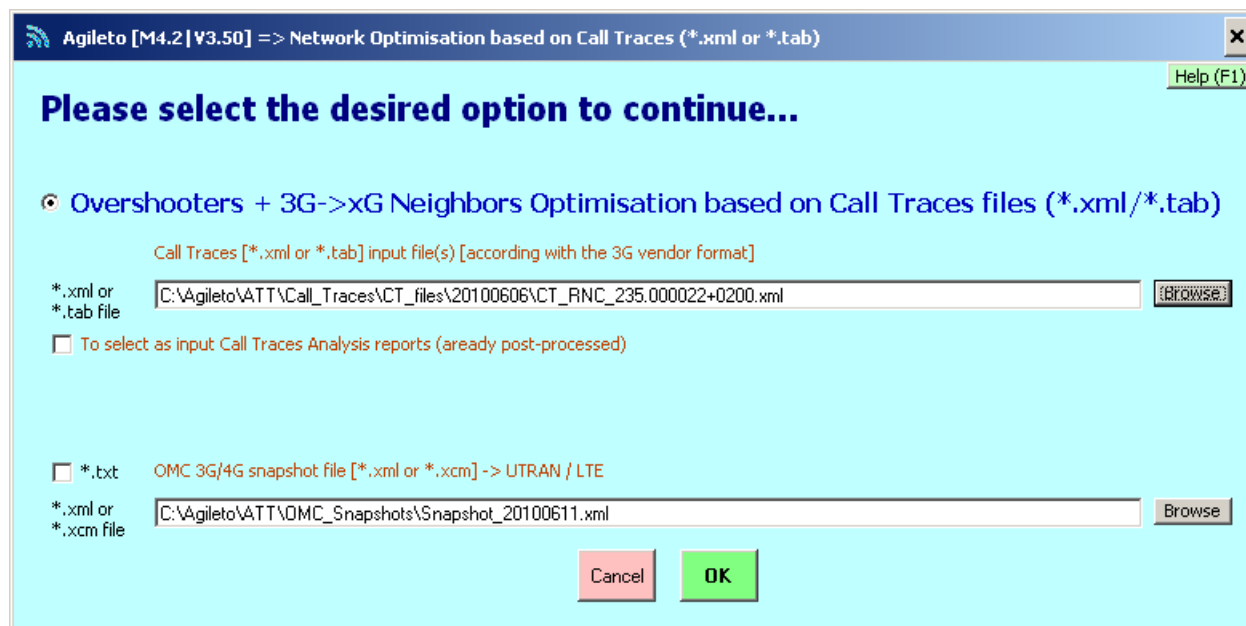
- 1) The results are based on the real traffic distribution over the 3G network and not on simulations therefore the final reports and proposals will be as closed as possible to the reality => very high level of confidence into the final results;
- 2) The associated costs related to this method are practically ZERO compared with the traditionally way of performing the neighbors optimization based on the drive tests; by comparison, the drive tests involve usually high costs and they are time expensive in order to produce, post-process and analyze them; they may not even collect the data statistically properly comparing with the real traffic distribution over the network => the final decisions may not be optimized for the real network;
- 3) The human resources work force allocation for this task is practically ZERO if we compare again with the traditionally drive test method. The tool is processing by itself all the inputs data based on intelligent algorithms and is generating the output results as a sum of actions/corrections to be performed into the 3G network like adding/removing specific neighbors -> ready to be implemented straight into OMC.



Choose Start option and after this, module M4.2:



Choose OK and you will get the following window:



-> The Call Traces (*.tab/*.xml) files should be a set of files collection recorded by the mobile operator (internal tracing) for the purpose of network (neighboring) optimization. These type of file(s) have been generic called at the beginning of this Detailed User Guide as the **File #3** (see chapter “[Before you start](#)”). Up to the 3G vendor equipment they may be provided in different formats and they may collect specific information during the collection time.

For example, in case of **Ericsson 3G** vendor equipment, the call traces collected are so called **GPEH** traces and they should record the following (RNC internal) events:

- **INTERNAL_SOFT_HANOVER_EXECUTION**
- **INTERNAL_SOHO_DS_MISSING_NEIGHBOUR**
- **INTERNAL_IFHO_REPORT_RECEPTION**
- **INTERNAL_IRAT_HO_CC_EXECUTION**

For **Alcatel-Lucent 3G** vendor equipment, the call traces collected are so called **CTN** and they should use the **Neighbors Optimisation** template available.

For full details regarding the collection and format of the Call Traces up to the specific 3G vendor equipment please do not hesitate to contact us (support@agileto.com).

-> OMC 3G snapshot file contains the 3G/2G network configuration details and may be obtained in different formats: *.xml, *.xcm, *.txt - up to the 3G vendor - **File #1** (see chapter “[Before you start](#)”).

After providing the relevant information, choose OK and you will get the main form where you need to set different parameters related to this specific module.

The main form of this module is looking like the screenshot below. You will have here different options to setup as they will be explained further.

Agileto [M4.2 | V3.50] => Network Optimisation based on Call Traces (*.xml or *.tab) Help (F1)

Call Traces (CT) input data:

☒ A) -> CT (*.xml/*.tab) [originally] traces are used as input for CT post-processing data (according with the path/location mentioned below)

CT input(s) (*.xml/*.tab) -> Browse

☐ B) -> CT Analysis reports are used as input for re-processing CT data/reports with potentially different input settings. The 3G-3G and 3G-2G full paths input reports are presented below:

3G-3G CT analysis report -> Browse

3G-2G CT analysis report -> Browse

OMC (3G) reference database:

OMC (3G) snapshot -> Browse

Call Traces (CT) post-processing settings:

3G-3G CT (*.xml/*.tab) traces filtering operation:

☒ Exclude PSCs detected reported with EcNo out of the normal range

☐ Include PSCs detected reported with EcNo out of the normal range [after "normalisation"]

3G-2G CT (*.xml/*.tab) traces filtering operation:

☐ Exclude 3G-2G reported with invalid 2G parameters (eg: BSIC)

☒ Include 3G-2G reported with invalid 2G parameters which may be unique evaluated

Maximum number of neighbors to be imposed (limitations):

Max Neigh 3G-3G Intra-Freq -> Max Neigh 3G-3G Inter-Freq -> Max Neigh 3G-2G Inter-RAT -> Max Neighbors with sib11andDch: 3G-3G Intra-Freq + 3G-3G [---->] Inter-Freq + 3G-2G Inter-RAT

Minimum desired neighbour relation contribution weight - as percentage [%] - in order to be validated for the automatically neighboring proposition plan

Neigh 3G-3G Intra-Freq [%] -> Neigh 3G-3G Inter-Freq [%] -> Neigh 3G-2G Inter-RAT [%] ->

Additionally output Neighbors settings:

☒ Keep always the neighbors co-site (3G->3G + 3G->2G) existing declarations ☐ Neighbors Priorities start with ->

Call Traces (CT) outputs settings and optimisation reports:

☒ CT 3G-3G Analysis report to be generated ☒ CT 3G-3G Analysis Overshooting report to be generated ☒ CT 3G-2G Analysis report to be generated

☒ 3G-3G Intra-Freq Neigh reciprocity is desired ☐ 3G-3G Inter-Freq Neigh reciprocity is desired ☒ Generate MapInfo and Google Earth outputs:

☒ OMC (3G) reference Snapshot is used for the CT 3G-3G ,3G-2G analysis reports (propositions) Reference 3G (F1) cell radius [Km] ->

Cancel
OK

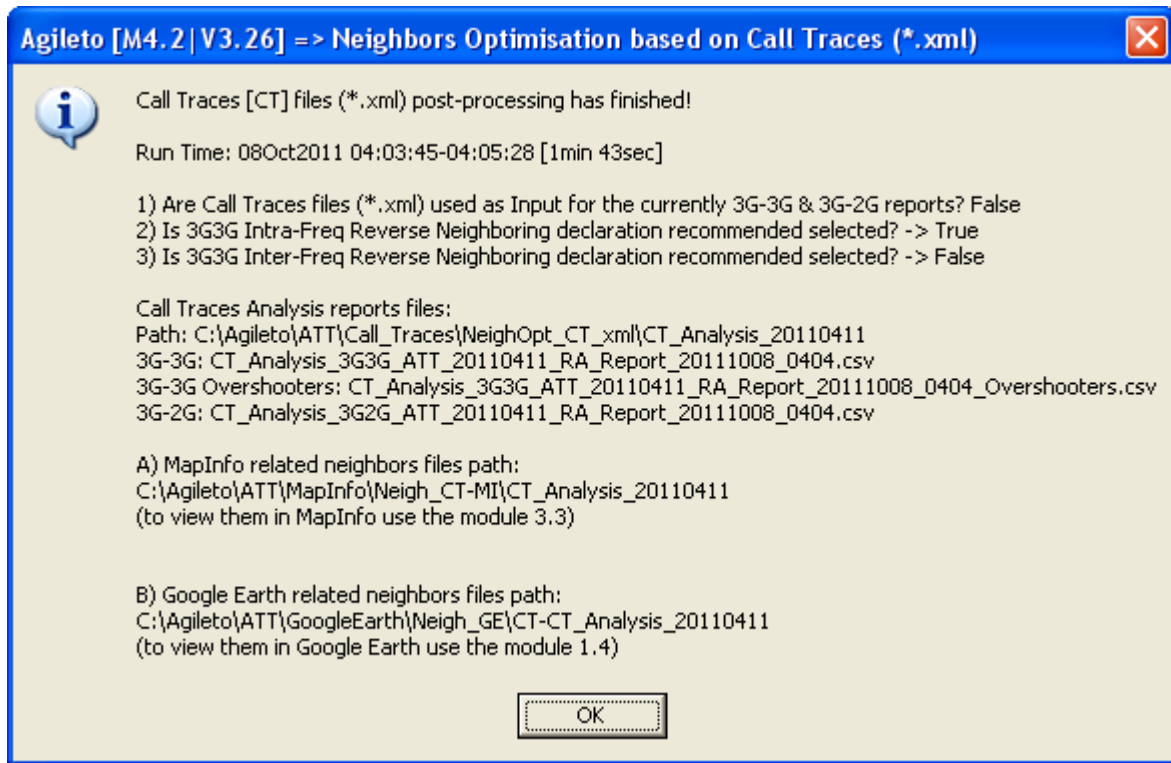
Here you have several options. It is possible to review (top area) the settings provided into the previous form (window) and additionally, there is a set of parameters to be provided as input for post-processing the call traces data.

As an important and special feature of this module, it may be possible to re-analyze the Call Traces already analyzed one time in advance by selecting the option B) from the screenshot presented above; this consists in providing as inputs for this module the Call Traces 3G-3G and 3G-2G analysis reports already generated one time in advance instead of providing as inputs the originally (*.xml/*.tab) call traces files. This is a very powerful feature of this module as it requires just few minutes of (re)processing time comparing with few hours how it may take initially when processing the originally call traces files, depending of the Call Traces collection interval of time.

Regarding the CT (Call Traces) **post-processing** settings section you may provide different inputs, as following:

- There are different filtering criteria options you may select for ‘abnormal cases’;
- You need to impose for each neighbors category [IntraFreq/InterFreq/InterRAT] the maximum number of neighbors as well as the total number of neighbors having sib11andDch flag allocation (these settings are made up to the mobile operator strategy as well as up to the 3G vendor capabilities);
- You need to impose for each [S (Source) ->T (Target) combination detected] neighbors category the minimum weight contribution [%] in order that specific S->T combination detected to be validated as neighbor relationship;
- Additionally output Neighbors settings are available like:
 - Keep always the neighbors co-site neighbors declarations;
 - Neighbors priorities should start with the value 0 or 1;
- You need to select the type of the reports to be generated (by default are selected all that means 3G->3G Neighbors / 3G Overshooters / 3G->2G Neighbors);
- Some other additionally settings may be performed (ex: neighbors reciprocity desired between different layers /etc).

After you choose all the desired options, please push OK button and when the module completed the calculations you will get a similar message like the one below (meanwhile you will see a progress indicator bar informing about the status of the post-processing data like it will be presented further):



As output, three types of the Call Traces analysis reports are provided as following:

- 1) Call Trace analysis regarding 3G-3G neighbors optimization;
- 2) Call Trace analysis regarding 3G-2G neighbors optimization;
- 3) Call Trace analysis regarding 3G Over-shooters cells;

Summary conclusion regarding the Call Traces Network Optimisation method:

The results of this method are provided into three main outputs (directly into the generated reports) including all the necessary changes to be performed into the 3G network in order to optimize the neighbors declarations, detect and correct the overshooters cells to improve the KPIs general performance, as following:

A) The new Network Neighbors Proposal (final optimized configuration);

B) All types of the neighbors optimization changes to be performed, as following:

- 1) Neighbors to be deleted;
- 2) Neighbors to be added;
- 3) Neighbors to be changed (priority and/or sib11anddch usage);

C) Detected Overshooters cells.

All the neighbors changes proposals mentioned above are provided for each type of the neighbors declarations, as following:

- a) 3G->3G Intra-Frequency
- b) 3G->3G Inter-Frequency
- c) 3G->2G Inter-RAT

To Remember:

All the three main outputs presented above (**Proposals/Changes/Overshooters**) are generated in *.csv tables files as well as they may be visualized straightway in MapInfo & Google Earth by using the modules [M3.3](#) respective [M1.4](#).

(Re) allocation of the neighbors priorities and the sib11orDch flags is performed during the optimization process based on real network traffic distribution and weight:

- 1) Each new neighbor proposed to be added it is provided with the optimum priority to be allocated as well as with the optimum type of sib11orDch allocation based on the specific limitations imposed initially caused by the 3G vendor provider or by the mobile telecom operator strategy (and obviously based on its specific weight extracted and calculated from the Call Traces post-processed results).
- 2) The remaining neighbors (which were not proposed to be deleted) are reallocated with the new sib11orDch flags and priorities based on this new optimized method involving the real customer traffic repartition and the weight detected into Call Traces collected during that period of time.

The list of the suspected Overshooters cells:

This method of network optimization provides additionally as output the list of the cells suspected to act as overshooters (together with all their associated affected target cells grouped per each overshooter cell).

This shortlist containing the suspected overshooters cells may be used straightway by the RF Optimization engineers in order to quickly verify the correctness of these detected overshooters/polluters cells; if necessary, after the positive detection as overshooters (visually / planning tools / drive tests) antennas down-tilts proposals should be provided as appropriate.

FINAL CONCLUSION:

Like it was already mentioned since the beginning of this chapter, the efficiency and the network optimization performance obtained by using this method is very high as the human resources work force allocation for this task is reduced to the minimum (practically to ZERO) if we compare with the standard drive test method involving a lot of the money spent and time consuming.

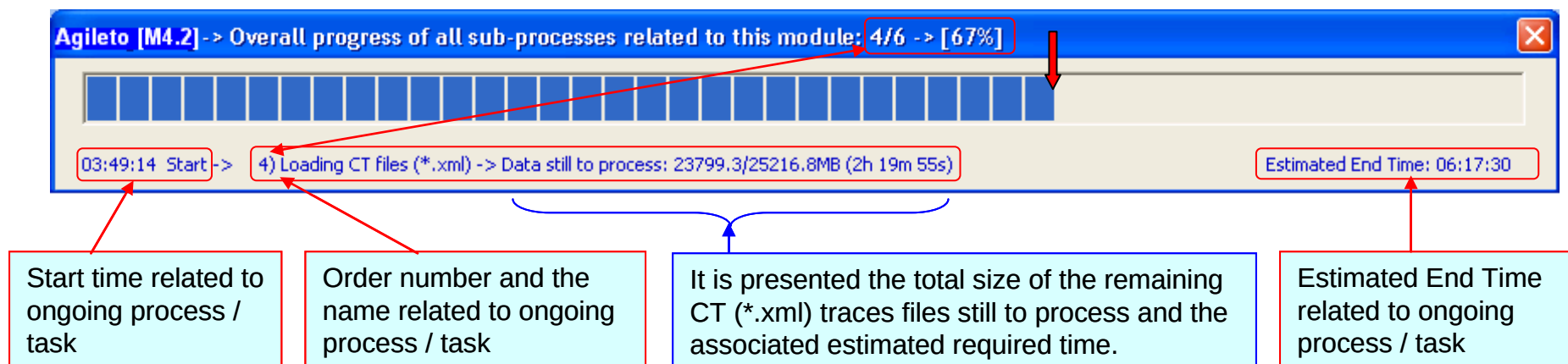
On another side, the final results are much more accurate comparing with the traditionally drive test method because the Call Traces are using the real signalization data from the real mobile network customers in time that the drive test may just collect partial data that may not be always customer representative.

As a general conclusion, this method is highly recommended to be used and maintained regularly into the mobile network optimization process.

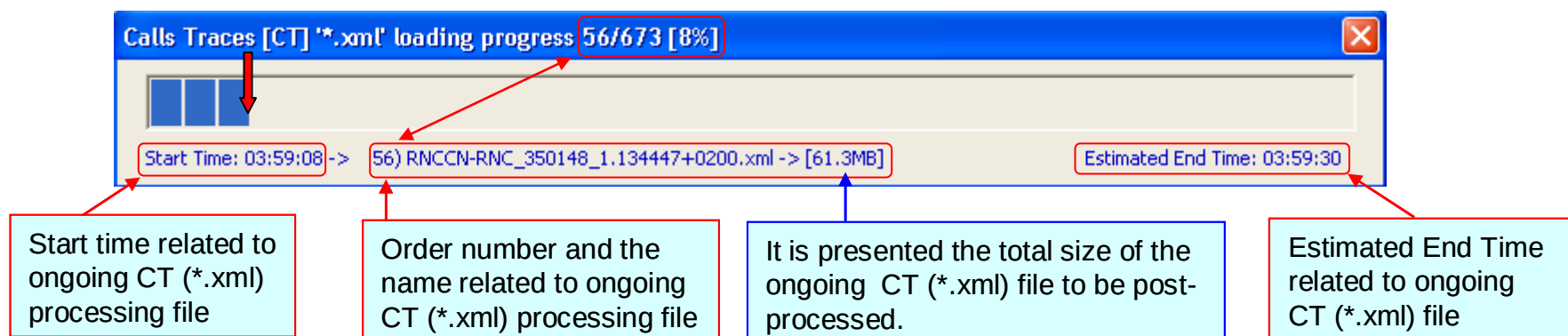
Additionally, this method is mandatory to be performed as the first step especially when new features are going to be tested into the mobile networks on specific clusters in order to avoid the abnormal KPIs results which may be generated just due to the poor neighbors optimization allocation process and the presence of an important number of overshooters (the poor neighbors optimization allocation process may be the result of its completion based only on visual mobile network representation even eventually improved with the limited info which may come from limited drive tests which cannot be statistically representative).

In order to have the better idea about the progress and status of this module there is displayed a progress bar (like presented below) presenting the level of the percentage completed together with different other associated details (very usefully for large numbers of CT amount of data which may lead to an important processing time to complete).

Notice: The similar type of the progress bar (like below) is displayed for all the others modules of this tool.



There is a second progress bar (like it is presented below) showing the summary progress and the post-processing status for each CT (*.xml/*.tab) file to be loaded related to all (CT) traces detected as inputs.



The next screenshots will present some examples for each type of the three above mentioned Call Traces analysis reports.

Example of 3G-3G Call Trace Neighbors Optimisation analysis report, Part 1:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
LCell_ID_S	LCell_ID_T	Additions	Deletions	Detections	Detections Weighted	PSC Detected	Ratio: Add / All_Add [%]	Ratio: Det / All_Det [%]	Ratio: Add+DetW / All_Add+DetW [%]	EcNo_Det_Avg	EcNo_Det_Min	EcNo_Det_Max	IntraFreq S<->T ?	T->S Evaluated into CTn Traces ?	S->T SIB11 Neigh Declared	T->S SIB11 Neigh Declared	S->T Priority Neigh Declared	T->S Priority Neigh Declared	S->T Priority New Proposal	T->S Priority New Proposal
3007 350514 U2_F0 => Total Neighbors/Sib11andDch details: IntraFr:10/10 InterFr:2/2 InterRAT:13/13 Total:25/25 Sum => AllAdd: Intra/Inter: Fr:91004/0 AllDet:660																				
3007	3005	33331	33581	0	0		36.6	0	36.4				TRUE	TRUE	sib11AndC	sib11AndC	5	11	0	1
3007	9996	28408	27694	0	0		31.2	0	31				TRUE	TRUE	sib11AndC	sib11AndC	7	13	1	1
3007	10929	19017	18854	0	0		20.9	0	20.8				TRUE	TRUE	sib11AndC	sib11AndC	11	7	2	0
3007	10930	6045	5837	0	0		6.6	0	6.6				TRUE	TRUE	sib11AndC	sib11AndC	2	4	3	2
3007	48865	2642	2646	0	0		2.9	0	2.9				TRUE	TRUE	sib11AndC	sib11AndC	10	16	4	10
3007	3005	410	480	0	0		0.5	0	0.4				TRUE	TRUE	sib11AndC	sib11AndC	4	6	5	14
3007	13679	374	389	0	0		0.4	0	0.4				TRUE	TRUE	sib11AndC	sib11AndC	6	7	6	-1
3007	48277	367	399	0	0		0.4	0	0.4				TRUE	TRUE	sib11AndC	sib11AndC	9	7	7	23
3007	29786	199	209	187	142	138	0.2	28.3	0.4	-13.14	-22.5	-8.5	TRUE	TRUE			-1	-1	8	-1
3007	18792	26	24	115	98	300	0	17.4	0.1	-11.33	-18	-7	TRUE	TRUE			-1	-1	9	-1
3007	3174	20	18	100	74	344	0	15.2	0.1	-13.51	-20	-8	TRUE	TRUE			-1	-1	10	-1
3007	9055	85	72	0	0		0.1	0	0.09				TRUE	TRUE	sib11AndC	sib11AndC	8	4	11	18
3007	756	11	0	97	49	352	0	0	0.06	-12.23	-19	-7.5	TRUE	FALSE			-1	-1	12	-1
3007	48536	0	17	13	11	41	0	0	0.06	-15.31	-24	-8.5	TRUE	FALSE			-1	-1	13	-1
3007	13778	30	38	29	27	595	0	0	0.06	-13.1	-17	-17	TRUE	TRUE			-1	-1	14	19
3007	6463	21	23	15	11	225	0	2.3	0.03	-13.37	-17	-1	TRUE	TRUE			-1	-1	-15	-1
3007	48836	4	5	5	1	193	0	3.8	0.02	-13.26	-19.5	-8	TRUE	FALSE			-1	-1	-16	-1
3007	50946	4	3	18	14	193	0	2.7	0.02	-13	-17	-9.5	TRUE	FALSE			-1	-1	-17	10
3007	18794	0	0	17	13	316	0	2.6	0.01	-12.59	-18	-10.5	TRUE	FALSE			-1	-1	-18	-1
3007	49654	4	3	4	3	475	0	0.6	0.01	-14.75	-15	-14	TRUE	TRUE			-1	-1	-19	-1
3007	49663	0	0	11	6	429	0	1.7	0.01	-17.4	-23	-13	TRUE	FALSE			-1	-1	-20	-1
3007	51425	3	2	2	2	201	0	0.3	0.01	-12.25	-13.5	-11	TRUE	TRUE			-1	-1	-21	-1
3007	10931	3	4	0	0	0	0	0	0	-15.75	-18.5	-13	TRUE	FALSE	sib11AndC	sib11AndC	3	6	22	8
3007	48745	0	0	6	3	450	0	0.9	0	-17.5	-17.5	-17.5	TRUE	FALSE			-1	-1	-23	-1
3007	6628	0	0	0	0	104	0	0.3	0	-18.5	-19	-18	TRUE	FALSE			-1	-1	-25	-1
3007	48528	0	0	2	1	500	0	0	0	-14	-14	-14	TRUE	FALSE			-1	-1	-26	-1
3007	48291	0	0	0	0	0	0	0	0	-16	-16	-16	TRUE	FALSE			-1	-1	-27	-1
3007	48517	0	0	2	1	144	0	0.3	0	-15	-15	-15	TRUE	FALSE			-1	-1	-28	-1
3007	13779	0	0	1	1	503	0	0.2	0				TRUE	TRUE			-1	-1	-1	-1
3007	3007	0	0	0	0	0	0	0	0				TRUE	TRUE			-1	-1	-1	-1
3007	59868	0	0	0	0	0	0	0	0				TRUE	FALSE			-1	-1	-1	-1
3007	55240	0	0	0	0	0	0	0	0				TRUE	FALSE			-1	-1	-1	-1
3007	48529	0	0	0	0	0	0	0	0				TRUE	TRUE			-1	-1	-1	-1
3007	64001	0	0	0	0	0	0	0	0				FALSE	FALSE	sib11AndDch		0	-1	-32	-1
3007	64002	0	0	0	0	0	0	0	0				FALSE	FALSE	sib11AndDch		1	-1	-33	-1
3083 560087 U2_F0 => Total Neighbors/Sib11andDch details: IntraFr:13/13 InterFr:3/3 InterRAT:14/14 Total:30/30 Sum => AllAdd: Intra/Inter: Fr:65051/83 AllDet:4233																				
3083	61880	27426	27286	42	35	72	42.2	1	40	-11.49	-6.5	-7.5	TRUE	TRUE	sib11AndC	sib11AndC	15	11	0	0
3083	61899	15209	15117	1	1	56	23.4	0	22.2	-16	-16	-16	TRUE	TRUE	sib11AndC	sib11AndC	7	7	1	3
3083	2545	8221	8491	0	0		12.6	0	12				TRUE	TRUE	sib11AndC	sib11AndC	7	7	2	1
3083	61700	6331	6365	0	0		9.7	0	9.2				TRUE	TRUE	sib11AndC	sib11AndC	6	3	4	4
3083	7795	1688	1655	0	0		2.6	0	2.5				TRUE	TRUE	sib11AndC	sib11AndC	14	12	4	8
3083	10537	1525	1575	0	0		2.3	0	2.2				TRUE	TRUE	sib11AndC	sib11AndC	9	5	5	2
3083	50693	205	201	1376	1238	136	0.3	32.5	2.1	-9.07	-24	-3	TRUE	TRUE			-1	-1	6	30

There are evaluated all the 3G-3G Additions Deletions Detections and their specific ratios

There are evaluated all the S->T (Source-Target) combinations detected into CTn (*.xml) traces

The New Priority allocation is based on this column ranking

Sib11 and Priority allocations values for S->T and reciprocally [T->S] are retrieved from the snapshot.

In case of Detections then EcNo Avg/Min/Max values are provided

The New Priority allocation for S->T and reverse T->S

Summary Neighboring info is provided for each 3G (Source) cell before all S->T combinations detected.

Example of 3G-3G Call Trace Neighbors Optimisation analysis report, Part 2:

1	2	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
LCell_ID_S	LCell_ID_T	Distance S->T [Km]	Inside BeamW? [S->T / T->S]	S->T Operation A/D/C[Prio]/Sib11	Final Neigh Reverse Status [S->T] T->S	Overshooters: Target Cells X / [Source Cells OSN]	CellName_S	CellName_T	3G Frq Layer Source [S]	3G Frq Layer Target [T]	Cell_Source	Cell_Target	RNC_Source	RNC_Target	sib11OrDchUsage	3G Target cell to be declared in RNC Source
3007	350514_U2	0	False/False	CP	1 1		350514_U2_F0	350514_U1_F0	1	1	W3007_31	W3006_21	613	613	sib11AndDch	
3007	9956	2.97	False/True	CP	1 1		350514_U2_F0	351074_U0_F0	1	1	W3007_31	W9956_11	613	613	sib11AndDch	
3007	10929	2.38	True/True	CP	1 1		350514_U2_F0	350177_U0_F0	1	1	W3007_31	W10929_11	613	613	sib11AndDch	
3007	10930	2.38	True/False	CP	1 1		350514_U2_F0	350177_U1_F0	1	1	W3007_31	W10930_21	613	613	sib11AndDch	
3007	48065	4.95	False/True	CP	1 1		350514_U2_F0	350487_U2_F0	1	1	W3007_31	W48065_31	613	613	sib11AndDch	
3007	3005	0	False/True	CP	1 1		350514_U2_F0	350614_U0_F0	1	1	W3007_31	W3005_11	613	613	sib11AndDch	
3007	13619	4.11	False/False	CP	1 1		350514_U2_F0	350725_U2_F0	1	1	W3007_31	W13619_31	613	613	sib11AndDch	
3007	48277	3.09	False/True	CP	1 1		350514_U2_F0	350725_U1_F0	1	1	W3007_31	W48277_21	613	613	sib11AndDch	
3007	29786	4.11	False/False	A	1 1		350514_U2_F0	350725_U0_F0	1	1	W3007_31	W29786_11	613	613	sib11AndDch	
3007	18792	6.3	True/False	A	1 1		350514_U2_F0	351491_U0_F0	1	1	W3007_31	W18792_11	613	613	sib11AndDch	
3007	3174	5.23	False/True	A	1 1		350514_U2_F0	351491_U1_F0	1	1	W3007_31	W3174_31	613	613	sib11AndDch	
3007	9958	2.97	False/False	CP	1 1		350514_U2_F0	351491_U2_F0	1	1	W3007_31	W9958_31	613	613	sib11AndDch	
3007	756	7.61	False/True	A	1 1		350514_U2_F0	350506_U2_F0	1	1	W3007_31	W756_31	613	613	sib11AndDch	
3007	48536	7.7	False/False	A	1 1		350514_U2_F0	350071_U2_F0	1	1	W3007_31	W48536_31	613	613	sib11AndDch	
3007	13778	5.29	True/False	A	1 1		350514_U2_F0	351419_U0_F0	1	1	W3007_31	W13778_11	613	613	sib11AndDch	
3007	6463	5.37	False/True	CP	0 0		350514_U2_F0	350071_U1_F0	1	1	W3007_31	W6463_11	613	613	sib11AndDch	
3007	48636	4.76	False/True	A	0 0		350514_U2_F0	350739_U0_F0	1	1	W3007_31	W48636_11	613	613	sib11AndDch	
3007	50946	4.58	False/True	A	1 1		350514_U2_F0	350071_U0_F0	1	1	W3007_31	W50946_11	613	613	sib11AndDch	
3007	18794	6.3	True/False	A	0 0		350514_U2_F0	351464_U2_F0	1	1	W3007_31	W18794_31	613	613	sib11AndDch	
3007	49654	5.23	False/True	CP	0 0		350514_U2_F0	350071_U1_F0	1	1	W3007_31	W49654_11	613	613	sib11AndDch	
3007	49663	6.94	False/True	CP	0 0		350514_U2_F0	350154_U0_F0	1	1	W3007_31	W49663_31	613	613	sib11AndDch	
3007	51425	4.58	False/False	CP	0 0		350514_U2_F0	350566_U1_F0	1	1	W3007_31	W51425_21	613	613	sib11AndDch	
3007	10931	2.38	True/False	CP	1 1		350514_U2_F0	350177_U2_F0	1	1	W3007_31	W10931_31	613	613	sib11AndDch	
3007	48745	5.47	False/True	CP	0 0		350514_U2_F0	350112_U0_F0	1	1	W3007_31	W48745_11	613	613	sib11AndDch	
3007	6628	7.41	True/True	CP	0 0		350514_U2_F0	351037_U0_F0	1	1	W3007_31	W6628_11	613	613	sib11AndDch	
3007	48528	14.77	False/True	CP	0 0		350514_U2_F0	350086_U0_F0	1	1	W3007_31	W48528_11	613	613	sib11AndDch	
3007	48291	9.42	True/False	CP	0 0		350514_U2_F0	350017_U0_F0	1	1	W3007_31	W48291_11	613	613	sib11AndDch	
3007	48517	6.87	False/False	CP	0 0		350514_U2_F0	350123_U0_F0	1	1	W3007_31	W48517_11	613	613	sib11AndDch	
3007	13779	5.29	True/False	CP	0 0		350514_U2_F0	351419_U1_F0	1	1	W3007_31	W13779_31	613	613	sib11AndDch	
3007	3007	0	False/False	CP	0 0		350514_U2_F0	350514_U2_F0	1	1	W3007_31	W3007_31	613	613	sib11AndDch	
3007	59868	6.01	False/False	CP	0 0		350514_U2_F0	350017_U1_F0	1	1	W3007_31	W59868_21	613	613	sib11AndDch	
3007	55240	4.3	False/False	CP	0 0		350514_U2_F0	350107_U2_F0	1	1	W3007_31	W55240_31	613	613	sib11AndDch	
3007	48529	3.09	False/False	CP	0 0		350514_U2_F0	350071_U1_F0	1	1	W3007_31	W48529_31	613	613	sib11AndDch	
3007	64001	0	False/False	D	0 0		350514_U2_F0	MICRO_1	1	0	W3007_31	MC-64001_00	613	802	sib11AndDch	
3007	64002	0	False/False	D	0 0		350514_U2_F0	MICRO_2	1	0	W3007_31	MC-64002_00	613	802	sib11AndDch	
3083	560087_U2	2.17	False/False	CP	1 1		560087_U2_F0	560010_U2_F0	1	1	W3083_31	W61880_31	613	613	sib11AndDch	
3083	61880	2.17	False/True	CP	1 1		560087_U2_F0	560010_U1_F0	1	1	W3083_31	W61880_31	613	613	sib11AndDch	
3083	61881	2.17	False/True	CP	1 1		560087_U2_F0	560010_U0_F0	1	1	W3083_31	W61881_31	613	613	sib11AndDch	
3083	61882	2.17	False/True	CP	1 1		560087_U2_F0	560010_U1_F0	1	1	W3083_31	W61882_31	613	613	sib11AndDch	
3083	61883	2.17	False/True	CP	1 1		560087_U2_F0	560010_U0_F0	1	1	W3083_31	W61883_31	613	613	sib11AndDch	
3083	61884	2.17	False/True	CP	1 1		560087_U2_F0	560010_U1_F0	1	1	W3083_31	W61884_31	613	613	sib11AndDch	
3083	61885	2.17	False/True	CP	1 1		560087_U2_F0	560010_U0_F0	1	1	W3083_31	W61885_31	613	613	sib11AndDch	
3083	61886	2.17	False/True	CP	1 1		560087_U2_F0	560010_U1_F0	1	1	W3083_31	W61886_31	613	613	sib11AndDch	
3083	61887	2.17	False/True	CP	1 1		560087_U2_F0	560010_U0_F0	1	1	W3083_31	W61887_31	613	613	sib11AndDch	
3083	61888	2.17	False/True	CP	1 1		560087_U2_F0	560010_U1_F0	1	1	W3083_31	W61888_31	613	613	sib11AndDch	
3083	61889	2.17	False/True	CP	1 1		560087_U2_F0	560010_U0_F0	1	1	W3083_31	W61889_31	613	613	sib11AndDch	
3083	61890	2.17	False/True	CP	1 1		560087_U2_F0	560010_U1_F0	1	1	W3083_31	W61890_31	613	613	sib11AndDch	
3083	61891	2.17	False/True	CP	1 1		560087_U2_F0	560010_U0_F0	1	1	W3083_31	W61891_31	613	613	sib11AndDch	
3083	61892	2.17	False/True	CP	1 1		560087_U2_F0	560010_U1_F0	1	1	W3083_31	W61892_31	613	613	sib11AndDch	
3083	61893	2.17	False/True	CP	1 1		560087_U2_F0	560010_U0_F0	1	1	W3083_31	W61893_31	613	613	sib11AndDch	
3083	61894	2.17	False/True	CP	1 1		560087_U2_F0	560010_U1_F0	1	1	W3083_31	W61894_31	613	613	sib11AndDch	
3083	61895	2.17	False/True	CP	1 1		560087_U2_F0	560010_U0_F0	1	1	W3083_31	W61895_31	613	613	sib11AndDch	
3083	61896	2.17	False/True	CP	1 1		560087_U2_F0	560010_U1_F0	1	1	W3083_31	W61896_31	613	613	sib11AndDch	
3083	61897	2.17	False/True	CP	1 1		560087_U2_F0	560010_U0_F0	1	1	W3083_31	W61897_31	613	613	sib11AndDch	
3083	61898	2.17	False/True	CP	1 1		560087_U2_F0	560010_U1_F0	1	1	W3083_31	W61898_31	613	613	sib11AndDch	
3083	61899	2.17	False/True	CP	1 1		560087_U2_F0	560010_U0_F0	1	1	W3083_31	W61899_31	613	613	sib11AndDch	
3083	61900	2.17	False/True	CP	1 1		560087_U2_F0	560010_U1_F0	1	1	W3083_31	W61900_31	613	613	sib11AndDch	
3083	61901	2.17	False/True	CP	1 1		560087_U2_F0	560010_U0_F0	1	1	W3083_31	W61901_31	613	613	sib11AndDch	
3083	61902	2.17	False/True	CP	1 1		560087_U2_F0	560010_U1_F0	1	1	W3083_31	W61902_31	613	613	sib11AndDch	
3083	61903	2.17	False/True	CP	1 1		560087_U2_F0	560010_U0_F0	1	1	W3083_31	W61903_31	613	613	sib11AndDch	
3083	61904	2.17	False/True	CP	1 1		560087_U2_F0	560010_U1_F0	1	1	W3083_31	W61904_31	613	613	sib11AndDch	
3083	61905	2.17	False/True	CP	1 1		560087_U2_F0	560010_U0_F0	1	1	W3083_31	W61905_31	613	613	sib11AndDch	
3083	61906	2.17	False/True	CP	1 1		560087_U2_F0	560010_U1_F0	1	1	W3083_31	W61906_31	613	613	sib11AndDch	
3083	61907	2.17	False/True	CP	1 1		560087_U2_F0	560010_U0_F0	1	1	W3083_31	W61907_31	613	613	sib11AndDch	
3083	61908	2.17	False/True	CP	1 1		560087_U2_F0	560010_U1_F0	1	1	W3083_31	W61908_31	613	613	sib11AndDch	
3083	61909	2.17	False/True	CP	1 1		560087_U2_F0	560010_U0_F0	1	1	W3083_31	W61909_31	613	613	sib11AndDch	
3083	61910	2.17	False/True	CP	1 1		560087_U2_F0	560010_U1_F0	1	1	W3083_31	W61910_31	613	613	sib11AndDch	
3083	61911	2.17	False/True	CP	1 1		560087_U2_F0	560010_U0_F0	1	1	W3083_31	W61911_31	613	613	sib11AndDch	
3083	61912	2.17	False/True	CP	1 1		560087_U2_F0	560010_U1_F0	1	1	W3083_31	W61912_31	613	613	sib11AndDch	
3083	61913	2.17	False/True	CP	1 1		560087_U2_F0	560010_U0_F0	1	1	W3083_31	W61913_31	613	613	sib11AndDch	
3083	61914	2.17	False/True	CP	1 1		560087_U2_F0	560010_U1_F0	1	1	W3083_31	W61914_31	613	613	sib11AndDch	
3083	61915	2.17	False/True	CP	1 1		560087_U2_F0	560010_U0_F0	1	1	W3083_31	W61915_31	613	613	sib11AndDch	
3083	61916	2.17	False/True	CP	1 1		560087_U2_F0	560010_U1_F0	1	1	W3083_31	W61916_31	613	613	sib11AndDch	
3083	61917	2.17	False/True	CP	1 1		560087_U2_F0	560010_U0_F0	1	1	W3083_31	W61917_31	613	613	sib11AndDch	
3083	61918	2.17	False/True	CP	1 1		560087_U2_F0	560010_U1_F0	1	1	W3083_31	W61918_31	613	613	sib11AndDch	
3083	61919	2.17	False/True	CP	1 1											

Example of 3G Call Trace analysis Overshooters report:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
LCell_ID Overshoot er	LCell_ID Target/ Affected	Additions: Target -> Overshoot er	Deletions: Target -> Overshoot er	Detection s: Target - > Overshoot er	EcNo_Det _Avg	EcNo_Det _Min	EcNo_Det _Max	Distance O<->T [Km]	Inside BeamW? [O- >T / T->O]	CellName Overshoot er	CellName Target/ Affected	3G Frq Layer Overshoot er	Cell 3G Overshoot er Code	Cell 3G Target/ Affected Code	RNC Overshoot er	RNC Target
48169	350122_U0_F0	31	0	1	-15	-15	-15	25.66	True/True	350122_U0_F0	351073_U1_F0	1	W48169_11	W18121_21	613	613
48169	48121	0	0	1	-15	-15	-15	7.84	True/False	350122_U0_F0	350161_U0_F0	1	W48169_11	W51769_11	613	613
48169	51768	0	0	1	-17	-17	-17	5.25	True/False	350122_U0_F0	350042_U0_F0	1	W48169_11	W48737_11	613	613
48169	48737	3	2	238	-11.77	-24	-7.5	3.07	True/False	350122_U0_F0	350044_U0_F0	1	W48169_11	W48541_11	613	613
48169	48541	1	0	5	-12	-14	-11	5.68	False/False	350122_U0_F0	351037_U0_F0	1	W48169_11	W6628_11	613	613
48169	6628	0	1	2	-16	-16	-16	5.46	False/False	350122_U0_F0	350569_U0_F0	1	W48169_11	W48856_11	613	613
48169	48856	0	0	2	-15	-15	-15	11.19	True/True	350122_U0_F0	351073_U1_F0	1	W48169_11	W13679_31	613	613
48169	13679	0	0	6	-16.92	-18	-16.5	7.68	True/False	350122_U0_F0	351037_U0_F0	1	W48169_11	W34874_21	613	613
48169	34874	0	0	2	-19.25	-19	-19	7.68	True/False	350122_U0_F0	351073_U1_F0	1	W48169_11	W18793_21	613	613
48169	18793	1	1	1	-17	-17	-17	6.29	False/False	350122_U0_F0	351099_U0_F0	1	W48169_11	W48262_31	613	613
48169	48262	0	0	2	-17.25	-18	-16.5	3.38	True/True	350122_U0_F0	350072_U0_F0	1	W48169_11	W48514_11	613	613
48169	48514	0	0	1	-11.5	-11.5	-11.5	6.29	True/False	350122_U0_F0	350072_U0_F0	1	W48169_11	W48514_11	613	613
48169	50215	1	1	7	-17	-17	-17	3	False/False	350122_U0_F0	350078_U0_F0	1	W48169_11	W50215_11	613	613
48169	48277	0	0	1	-14.5	-14.5	-14.5	3.38	False/False	350122_U0_F0	350115_U1_F0	1	W48169_11	W48277_21	613	613
48169	48523	0	0	6	-13.17	-15.5	-12	6.52	True/False	350122_U0_F0	350159_U0_F0	1	W48169_11	W48523_11	613	613
48169	48534	0	0	13	-16.85	-19.5	-14.5	5.15	True/False	350122_U0_F0	350062_U1_F0	1	W48169_11	W48534_21	613	613
48169	15958	0	0	1	-18.5	-18.5	-18.5	6.5	False/False	350122_U0_F0	351032_U1_F0	1	W48169_11	W15958_21	613	613
48169	6463	0	0	1	-14	-14	-14	7.33	False/False	350122_U0_F0	351099_U0_F0	1	W48169_11	W6463_11	613	613
48169	49585	0	0	13	-12.88	-15.5	-11.5	7.08	True/False	350122_U0_F0	350041_U0_F0	1	W48169_11	W49585_11	613	613
48169	48267	0	0	1	-17	-17	-17	5.68	False/False	350122_U0_F0	350041_U0_F0	1	W48169_11	W48267_11	613	613
48169	49661	0	0	2	-15.25	-15.5	-15	8.94	True/True	350122_U0_F0	350124_U2_F0	1	W48169_11	W49661_31	613	613
48169	48865	0	0	1	-18.5	-18.5	-18.5	11.66	True/False	350122_U0_F0	350487_U2_F0	1	W48169_11	W48865_31	613	613
48169	50947	1	1	30	-6.93	-24	-13.5	7.89	False/False	350122_U0_F0	350566_U2_F0	1	W48169_11	W48865_31	613	613
48169	48889	0	0	2	-14.75	-15	-14.5	6.88	False/False	350122_U0_F0	350068_U0_F0	1	W48169_11	W50947_31	613	613
48169	47885	0	0	3	-9.5	-9	-10.5	5.26	False/False	350122_U0_F0	350147_U2_F0	1	W48169_11	W48889_11	613	613
48169	57800	0	0	1	-18.5	-18.5	-18.5	5.26	False/False	350122_U0_F0	350147_U2_F0	1	W48169_11	W48889_11	613	613
48169	47889	0	0	71	-16.23	-17.5	-15	5.26	False/False	350122_U0_F0	350147_U1_F0	1	W48169_11	W57800_21	613	613
48169	49654	0	0	3	-12	-12	-12	9.17	True/False	350122_U0_F0	350171_U0_F0	1	W48169_11	W47889_11	613	613
48169	49720	0	0	2	-17.25	-17.5	-17.5	7.73	False/False	350122_U0_F0	350171_U0_F0	1	W48169_11	W49654_11	613	613
48169	48817	0	0	2	-12.25	-12.5	-12	6.87	True/True	350122_U0_F0	350173_U2_F0	1	W48169_11	W49720_31	613	613
48169	48851	0	0	11	-14.5	-14.5	-14.5	6.87	True/True	350122_U0_F0	350154_U2_F0	1	W48169_11	W48817_31	613	613
48169	48850	0	0	9	-15.83	-20.5	-10	7.39	False/False	350122_U0_F0	350733_U0_F0	1	W48169_11	W48851_11	613	613
48812	350089_U1_F0	31	0	11	-14.68	-17.5	-12	7.39	False/False	350122_U0_F0	350733_U1_F0	1	W48169_11	W48850_21	613	613
48812	48524	0	0	11	-14.68	-17.5	-12	2.24	False/False	350089_U1_F0	350082_U2_F0	1	W48812_21	W48524_31	613	613
48812	48272	0	0	13	-13.67	-17.5	-11	2.24	False/False	350089_U1_F0	350082_U1_F0	1	W48812_21	W48272_21	613	613
48812	51768	0	0	15	-13.67	-17.5	-11	1.56	True/False	350089_U1_F0	350161_U1_F0	1	W48812_21	W51768_21	613	613
48812	48528	0	0	12	-13.5	-14.5	-12	9.35	False/False	350089_U1_F0	350086_U0_F0	1	W48812_21	W48528_11	613	613
48812	48516	0	0	1	-16.5	-16.5	-16.5	4.37	True/False	350089_U1_F0	350123_U1_F0	1	W48812_21	W48516_21	613	613
48812	48538	0	0	20	-14.08	-17.5	-11.5	11.92	True/False	350089_U1_F0	350104_U2_F0	1	W48812_21	W48538_31	613	613
48812	49697	0	0	8	-11.56	-12.5	-11	2.18	True/False	350089_U1_F0	350567_U0_F0	1	W48812_21	W49697_11	613	613
48812	34874	0	0	15	-14.93	-17	-11	5.08	True/False	350089_U1_F0	350727_U1_F0	1	W48812_21	W34874_21	613	613

In case of Detections then
EcNo Avg/Min/Max
values are provided

There are evaluated all transitions
Additions/Deletions/Detection
s between T->O

Frequency Layer related
to Overshoot [O]

Geographically evaluations are
provided for each O->T

For each Overshoot it is a Summary
line providing the following:

- 1) Local Cell ID
- 2) Cell Name
- 3) No of Target cells affected by the overshooter

Different Parameters like
Name/Code/RNC are
provided for 'O' & 'T'

It is provided the entire list of
the Target cells affected
by each Overshoot

Example of 3G-2G Call Trace Neighbors Optimisation analysis report, Part 1:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
LCell3G_ID_S	LCell2G_ID_T	CS_3G2G Attempts	CS_3G2G Failures	PS_3G2G Attempts	PS_3G2G Failures	CS_3G2G SR [%]	PS_3G2G SR [%]	All_3G2G SR [%]	CS+PS Attempts / All_CS+PS Attempts [%]	Distance S<->T [Km]	Inside BeamW? [S->T / T->S]	SIB11 NeighDeclar	Priority Neigh Declared	Priority New Proposal	S->T Operation : A/D/C(Prio/Sib11)
23878	350075	U0	FO => Total Neighbors/Sib11andDch details: IntraFr:6/6 InterFr:15/15 InterRAT:10/10 Total:31/31 Sum => All 3G2G Att:3049 All 3G2G Fail:72 All 3G2G SR:98.3%												
23878	3548	1008	24	15	1	97.6	93.3	97.6	33.6	2.78	False/False	sib11AndDch	4	0	CP
23878	32354	795	19	2	0	97.6	100	97.6	26.1	0	False/False	sib11AndDch	6	1	CP
23878	23516	555	13	2	0	97.7	100	97.7	18.3	6.24	True/False	sib11AndDch	2	2	CP
23878	3516	232	8	1	0	96.6	100	96.6	7.6	6.24	True/False	sib11AndDch	0	3	CP
23878	30901	188	1	5	0	98.3	100	98.3	2.3	10.28	False/True	sib11AndDch	9	4	CP
23878	13516	114	2	1	0	98.3	100	98.3	2.3	0	True/False	sib11AndDch	1	5	CP
23878	32351	58	1	0	0	98.3	100	98.3	1.9	0	False/False	sib11AndDch	7	6	CP
23878	13548	43	1	1	1	97.7	0	95.5	1.4	2.78	False/False	sib11AndDch	5	7	CP
23878	13549	10	0	0	0	100	0	100	0.3	12.12	False/True		-1	8	A
23878	30865	8	0	0	0	100	0	100	0.3	10.16	False/False		-1	9	A
23878	3547	6	0	0	0	93.3	0	83.3	0.2	6.37	False/True	sib11AndDch	3	10	CPS
23878	36657	3	0	0	0	100	0	100	0.1	7.14	False/False		-1	11	A
23878	36503	2	0	0	0	100	0	100	0.07	7.14	False/False	sib11AndDch	8	12	CPS
26245	350512	U0	FO => Total Neighbors/Sib11andDch details: IntraFr:11/11 InterFr:5/5 InterRAT:13/13 Total:29/29 Sum => All 3G2G Att:607 All 3G2G Fail:8 All 3G2G SR:98.7%												
26245	31079	457	6	1	0	98.7	100	98.7	76.5	0	True/True	sib11AndDch	9	0	CP
26245	45021	61	0	0	0	100	0	100	4.3	0	True/False	sib11AndDch	12	1	CP
26245	3520	32	0	0	0	100	0	100	5.3	4.12	False/True	sib11AndDch	0	2	CP
26245	3596	29	0	0	0	100	0	100	4.8	6.65	False/False	sib11AndDch	1	3	CP
26245	45020	10	0	0	0	100	0	100	6.32	0	True/False	sib11AndDch	11	4	CP
26245	31074	7	8	8	0	100	0	100	1.2	0	True/False	sib11AndDch	6	5	CP
26245	30862	6	0	0	0	66.7	0	66.7	1	5.23	False/False	sib11AndDch	4	6	CP
26245	31080	1	0	0	0	100	0	100	0.2	0	True/False	sib11AndDch	10	7	CP
26245	31076	1	0	0	0	100	0	100	0.2	4.6	False/True	sib11AndDch	8	8	CP
26245	3091	1	0	0	0	100	0	100	0.2	7.64	False/True	sib11AndDch	1	9	A
26245	2995	1	0	0	0	100	0	100	0.2	7.16	False/True	sib11AndDch	3	10	CP
26245	13560	1	0	0	0	100	0	100	0.2	9.46	True/True	sib11AndDch	2	11	D
26245	3087	1	0	0	0	5.23	0	5.23	0	4.6	False/True	sib11AndDch	5	-12	D
26245	31075	1	0	0	0	4.6	0	4.6	0	4.6	False/False	sib11AndDch	7	-13	D
26246	350512	U1	FO => Total Neighbors/Sib11andDch details: IntraFr:12/12 InterFr:3/3 InterRAT:13/13 Total:28/28 Sum => All 3G2G Att:474 All 3G2G Fail:8 All 3G2G SR:98.7%												
26246	31074	297	4	0	0	98.7	100	98.7	76.5	0	True/True	sib11AndDch	9	0	CP
26246	3520	86	0	0	0	100	0	100	4.3	0	True/True	sib11AndDch	12	1	CP
26246	31080	36	1	0	0	97.2	0	97.2	0.2	0	True/False	sib11AndDch	10	2	CP
26246	23517	31	2	0	0	93.5	0	93.5	0.2	0	True/False	sib11AndDch	3	3	CP
26246	31083	12	0	0	0	100	0	100	0.2	4.6	False/False	sib11AndDch	1	4	CP
26246	13520	5	0	0	0	100	0	100	0.2	4.12	True/False	sib11AndDch	2	5	CP

The New Priority allocation is based on this column ranking

There are evaluated all [CS & PS] 3G-2G Attempts/Failures/SR[%]

Sib11 and Priority allocations values for each 3G-2G [S->T] which are retrieved from the snapshot

Geographically evaluations are provided for each S->T

There are evaluated all the 3G->2G [S->T] (Source-Target) combinations detected into CTn (*.xml) traces

The New Priority allocation proposal for 3G-2G [S->T]

S->T Operation to be performed:
A->Addition;
D->Deletion;
CP/S->Change

Each 3G (Source) cell contains a summary line with regards to All the 3G2G activity (Attempts/Failures/SR[%])

Example of 3G-2G Call Trace Neighbors Optimisation analysis report, Part 2:

1	2	15	16	17	18	19	20	21	22	23	24	25	26	27
LCell3G_ID_S	LCell2G_ID_T	Priority New Proposal	S->T Operation : A/D/C[Pri or/Sib11]	CellName3G_S	CellName2G_T	3G Frq Layer Source [S]	LAC2G_T target	BCCH2G Target	BSIC2G Target	Cell_Source	Cell_Target	RNC_Source	sib11OrDchUsage	2G Target cell to be declared in RNC Source
23878	350075	UBG2G	Fail:72 All 3G2G SR [%]:97.64											
23878	3548	0	CP	350075_U0_F0	GSM900_350048_S0	1	6001	83	5	W23878_11	G3548_1	613	sib11AndDch	
23878	32354	1	CP	350075_U0_F0	GSM900_350075_S0	1	6001	121	16	W23878_11	G32354_1	613	sib11AndDch	
23878	23516	2	CP	350075_U0_F0	GSM900_350016_S0	1	6001	136	1	W23878_11	G23516_3	613	sib11AndDch	
23878	3516	3	CP	350075_U0_F0	GSM900_350016_S0	1	6001	136	7	W23878_11	G3516_1	613	sib11AndDch	
23878	30901	4	CP	350075_U0_F0	GSM900_350513_S1	1	6001	85	7	W23878_11	G30901_2	613	sib11AndDch	
23878	13516	5	CP	350075_U0_F0	GSM900_350016_S1	1	6001	133	5	W23878_11	G13516_2	613	sib11AndDch	
23878	32351	6	CP	350075_U0_F0	GSM900_350075_S1	1	6001	121	16	W23878_11	G32351_2	613	sib11AndDch	
23878	13548	7	CP	350075_U0_F0	GSM900_350048_S1	1	6001	83	5	W23878_11	G13548_1	613	sib11AndDch	
23878	13549	8	A	350075_U0_F0	GSM900_350049_S1	1	6001	86	1	W23878_11	G3549_1	613	sib11AndDch	
23878	30865	9	A	350075_U0_F0	GSM900_350518_S1	1	6001	124	1	W23878_11	G30865_2	613	sib11AndDch	
23878	3547	10	CPS	350075_U0_F0	GSM900_350047_S0	1	6001	120	5	W23878_11	G3547_1	613	DchOnly	
23878	36657	11	A	350075_U0_F0	GSM900_350047_S1	1	6001	77	2	W23878_11	G36657_1	613	DchOnly	
23878	36502	12	CPS	350075_U0_F0	GSM900_350193_S1	1	6001	62	25	W23878_11	G36502_2	613	DchOnly	
26245	350512	UBG2G	Fail:8 All 3G2G SR [%]:98.68											
26245	31079	0	CP	350512_U0_F0	GSM900_350512_S0	1	6001	85	24	W26245_11	G31079_1	613	sib11AndDch	
26245	45021	1	CP	350512_U0_F0	GSM900_351414_S2	1	6001	121	8	W26245_11	G45021_1	613	sib11AndDch	
26245	3520	2	CP	350512_U0_F0	GSM900_350030_S0	1	6001	120	4	W26245_11	G3520_1	613	sib11AndDch	
26245	3596	3	CP	350512_U0_F0	GSM900_350096_S0	1	6001	80	5	W26245_11	G3596_1	613	sib11AndDch	
26245	45020	4	CP	350512_U0_F0	GSM900_351414_S1	1	6001	124	2	W26245_11	G45020_2	613	sib11AndDch	
26245	31074	5	CP	350512_U0_F0	GSM900_350512_S1	1	6001	81	8	W26245_11	G31074_2	613	sib11AndDch	
26245	30862	6	CP	350512_U0_F0	GSM900_350516_S0	1	6001	76	5	W26245_11	G30862_1	613	sib11AndDch	
26245	31080	7	CP	350512_U0_F0	GSM900_350512_S2	1	6001	25	25	W26245_11	G31080_3	613	sib11AndDch	
26245	31076	8	CP	350512_U0_F0	GSM900_350516_S1	1	6001	83	3	W26245_11	G31076_3	613	sib11AndDch	
26245	30917	9	CP	350512_U0_F0	GSM900_350516_S0	1	6001	83	3	W26245_11	G30917_1	613	sib11AndDch	
26245	29953	10	CP	350512_U0_F0	GSM900_350190_S2	1	6001	107	8	W26245_11	G29953_3	613	sib11AndDch	
26245	13560	11	CP	350512_U0_F0	GSM900_350000_S1	1	6001	118	58	W26245_11	G13560_2	613	sib11AndDch	
26245	30874	-12	D	350512_U0_F0	GSM900_350516_S1	1	6001	121	3	W26245_11	G30874_2	613	sib11AndDch	
26245	31075	-13	D	350512_U0_F0	GSM900_350188_S0	1	6001	115	24	W26245_11	G31075_1	613	sib11AndDch	
26246	350512	UBG2G	Fail:8 All 3G2G SR [%]:98.31											
26246	31074	0	CP	350512_U1_F0	GSM900_350512_S1	1	6001	81	7	W26246_21	G31074_2	613	sib11AndDch	
26246	3520	1	CP	350512_U1_F0	GSM900_350020_S0	1	6001	120	4	W26246_21	G3520_1	613	sib11AndDch	
26246	31080	2	CP	350512_U1_F0	GSM900_350512_S2	1	6001	77	25	W26246_21	G31080_3	613	sib11AndDch	
26246	23517	3	CP	350512_U1_F0	GSM900_350017_S2	1	6001	108	25	W26246_21	G23517_3	613	sib11AndDch	
26246	31083	4	CP	350512_U1_F0	GSM900_350188_S1	1	6001	76	28	W26246_21	G31083_2	613	sib11AndDch	
26246	13520	5	CP	350512_U1_F0	GSM900_350020_S1	1	6001	118	13	W26246_21	G13520_2	613	sib11AndDch	

3G Source & 2G Target Names & Codes are provided

S->T Operation to be performed:
A -> Addition
D -> Deletion
C/P/S -> Change Priority/Sib11

The New sib11OrDchUsage allocation for the 3G-2G combination detected [S->T]

The New Priority allocation proposal for 3G-2G [S->T]

There are evaluated all the 3G->2G [S->T] (Source-Target) combinations detected into CTn (*.xml) traces

Different set of Parameters for 3G Source & 2G Target are provided like:

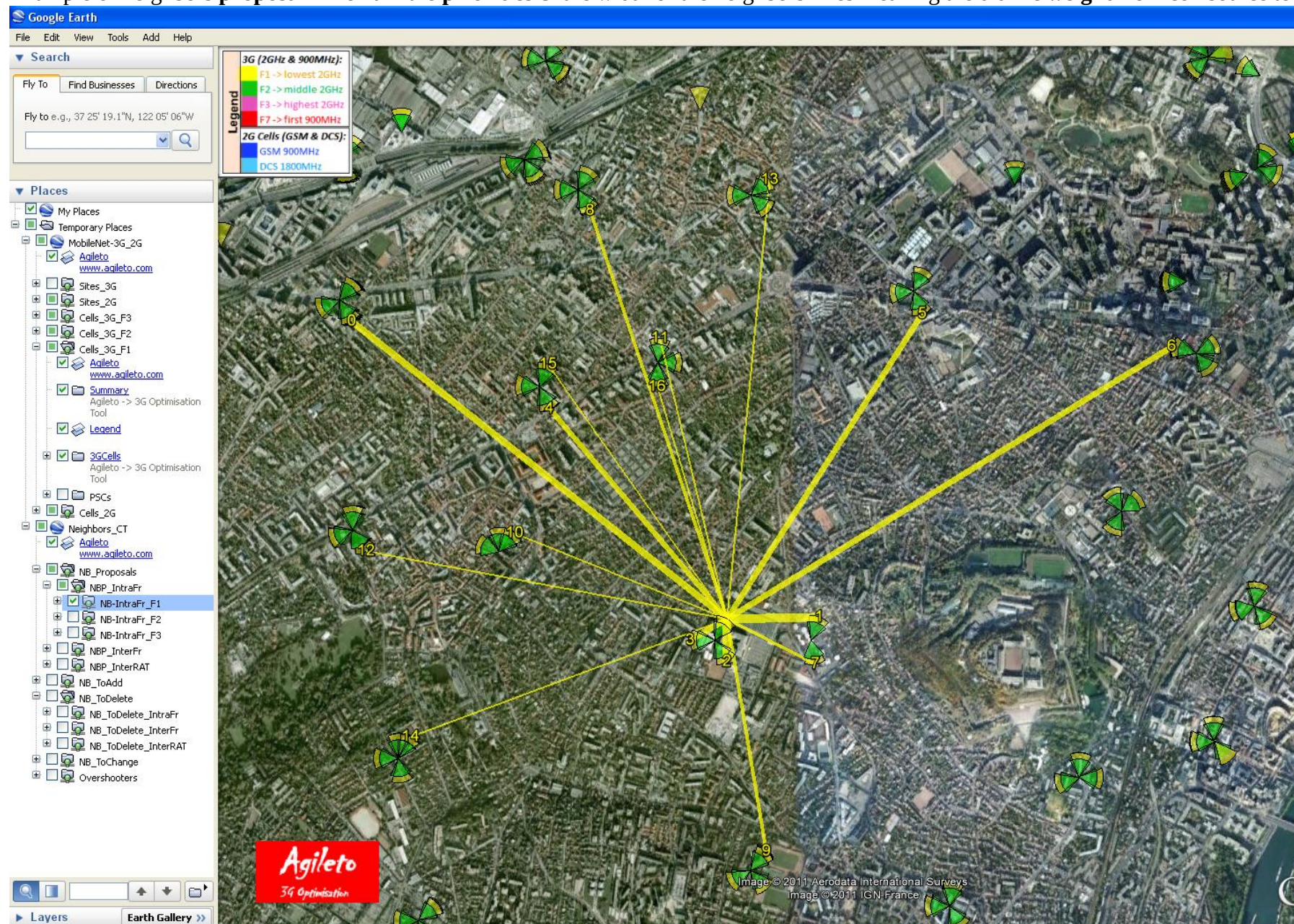
- 3G Frq Layer
- 3G RNC
- 2G LAC
- 2G BCCH

At the end of each analysis report there is generated a summary info where all the inputs/settings parameters used for post-processing the data are recorded, as well as the all the CT (*.xml/*.tab) files processed as input data; some additionally info for each CT (*.xml/*.tab) file is appended to this info as well as the validation for each CT file, like into the screenshot presented below.

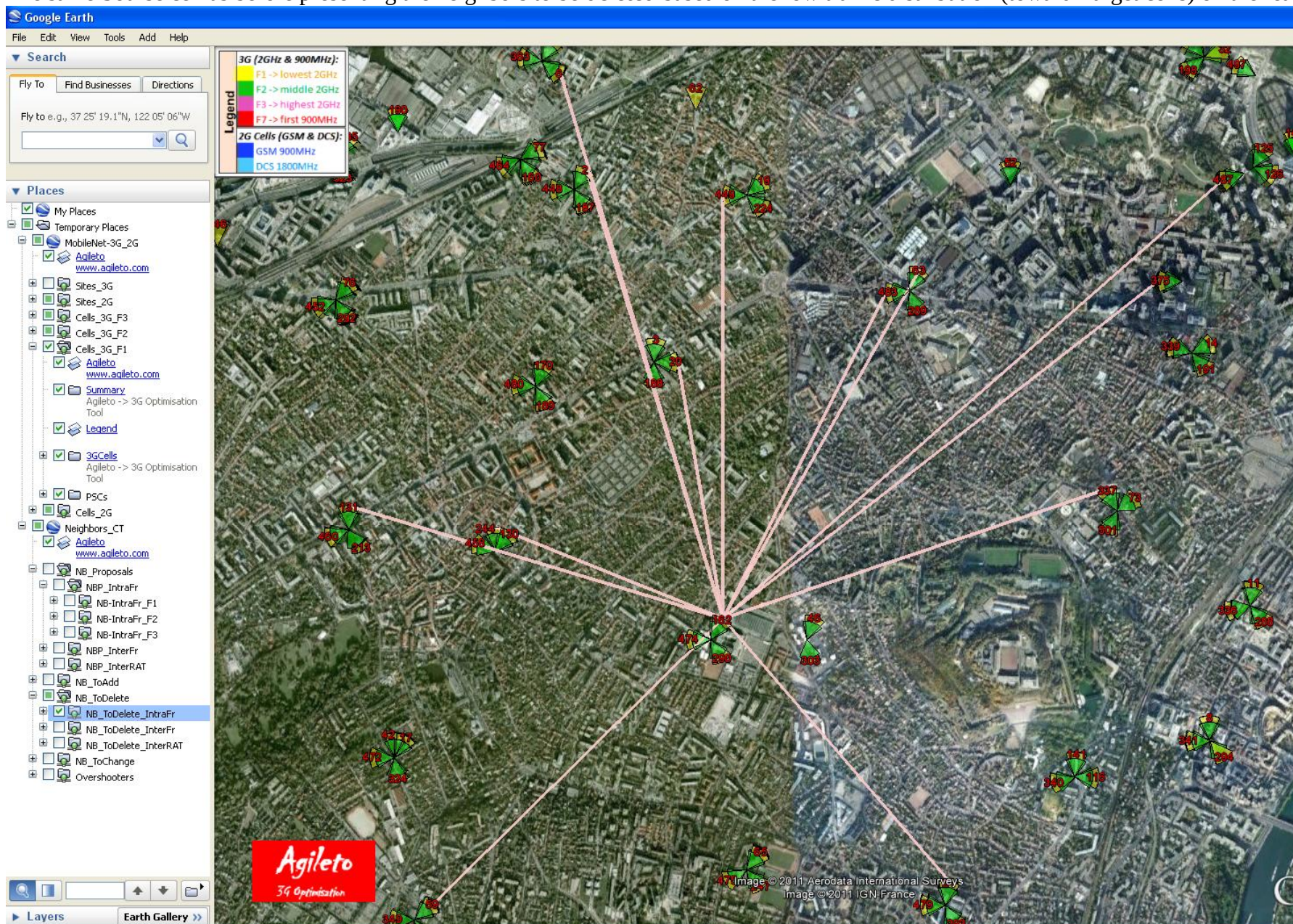
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
LCell_ID_S	LCell_ID_T	Additions	Deletions	Detections	Detections Weighted	PSC Detected	Ratio: Add / All_Add [%]	Ratio: Det / All_Det [%]	Ratio: Add+DetW / All_Add+DetW [%]	EcNo_Det_Avg	EcNo_Det_Min	EcNo_Det_Max	IntraFreq S<->T ?	T->S Evaluated into CTn Traces ?	S->T SIB11 Neigh Declared	T->S SIB11 Neigh Declared	S->T Priority Neigh Declared	T->S Priority Neigh Declared
61882	560060_UO_F0 => Total Neighbors/Sib11andDch details: IntraFr:5/5 InterFr:3/3 InterRAT:8/8 Total:16/16 Sum => AllAdd_Intra/Inter_Fr:36/0 AllDet:0																	
61882	61881	27	26	0	0		75	0	75				TRUE	TRUE	sib11AndC	sib11AndC	3	4
61882	61880	7	7	0	0		19.4	0	19.4				TRUE	TRUE	sib11AndC	sib11AndC	2	7
61882	61698	2	2	0	0		5.6	0	5.6				TRUE	TRUE	sib11AndC	sib11AndC	8	8
61882	61882	0	11	0	0		0	0	0				TRUE	TRUE			-1	-1
61882	61700												TRUE	FALSE	sib11AndC	sib11AndC	4	3
61882	13197												TRUE	FALSE	sib11AndC	sib11AndC	7	15
61882	64001												FALSE	FALSE	sib11AndDch		0	-1
61882	64002												FALSE	FALSE	sib11AndDch		1	-1
61882	29600												FALSE	FALSE	sib11AndC	sib11AndC	6	21
Agileto => www.agileto.com © 2010 All rights reserved (support@agileto.com) [M4.2 V3.11] => Neighbors Optimisation based on Call Traces (*.xml)																		
User Login: Admin Run Time: 07Jun2010 03:15:16-03:16:05 [49sec]																		
Minimum desired percentage [%] for Intra-Freq S->T combinations detected: 0.05%																		
Minimum desired percentage [%] for Inter-Freq S->T combinations detected: 0.50%																		
Is 3G3G Intra-Freq Reverse Neighboring declaration recommended selected? -> True																		
CT 3G3G output Analysis file: C:\Agileto\Call_Traces\NeighOpt_CT_xml\CT_XML_Analysis_3G3G_CTTraces_xml_Files3_20100606000022_h0m43s10_Report_20101101_0316.csv																		
CT 3G3G output suspected Overshooters file: C:\Agileto\Call_Traces\NeighOpt_CT_xml\CT_XML_Analysis_3G3G_CTTraces_xml_Files3_20100606000022_h0m43s10_Report_20101101_0316_Overshooters.csv																		
CT 3G2G output Analysis file: C:\Agileto\Call_Traces\NeighOpt_CT_xml\CT_XML_Analysis_3G2G_CTTraces_xml_Files3_20100606000022_h0m43s10_Report_20101101_0316.csv																		
Is the OMC Snapshot file used for Neighboring comparison? -> True																		
Input OMC Snapshot file: C:\Agileto\OMC-3G_Snapshots\SNAPSHOT_20100611.xcm																		
Are CT (*.xml) traces files used as Input for the currently 3G-3G & 3G-2G reports? True																		
Are PSCs detected reported with EcNo >= 0 discarded? -> True																		
CT (*.xml) input traces files Path: C:\Agileto\Call_Traces\CTTraces_xml																		
CT (*.xml) input traces files Un-Validated: 0																		
CT (*.xml) input traces files Validated: 3 -> Total Size=64.15MB Duration=h0m43s10																		
20100606000022 169 to 20100606001126 208 [RNCCN-RNC_235.000022+0200.xml -> (18.66MB) (703s)]																		
20100606001126 208 to 20100606002711 135 [RNCCN-RNC_235.001126+0200.xml -> (22.17MB) (872s)]																		
20100606002711 135 to 20100606004402 139 [RNCCN-RNC_235.002711+0200.xml -> (23.32MB) (1015s)]																		

Few neighbor optimisation examples represented in Google Earth based on this method are presented into the next screenshots.

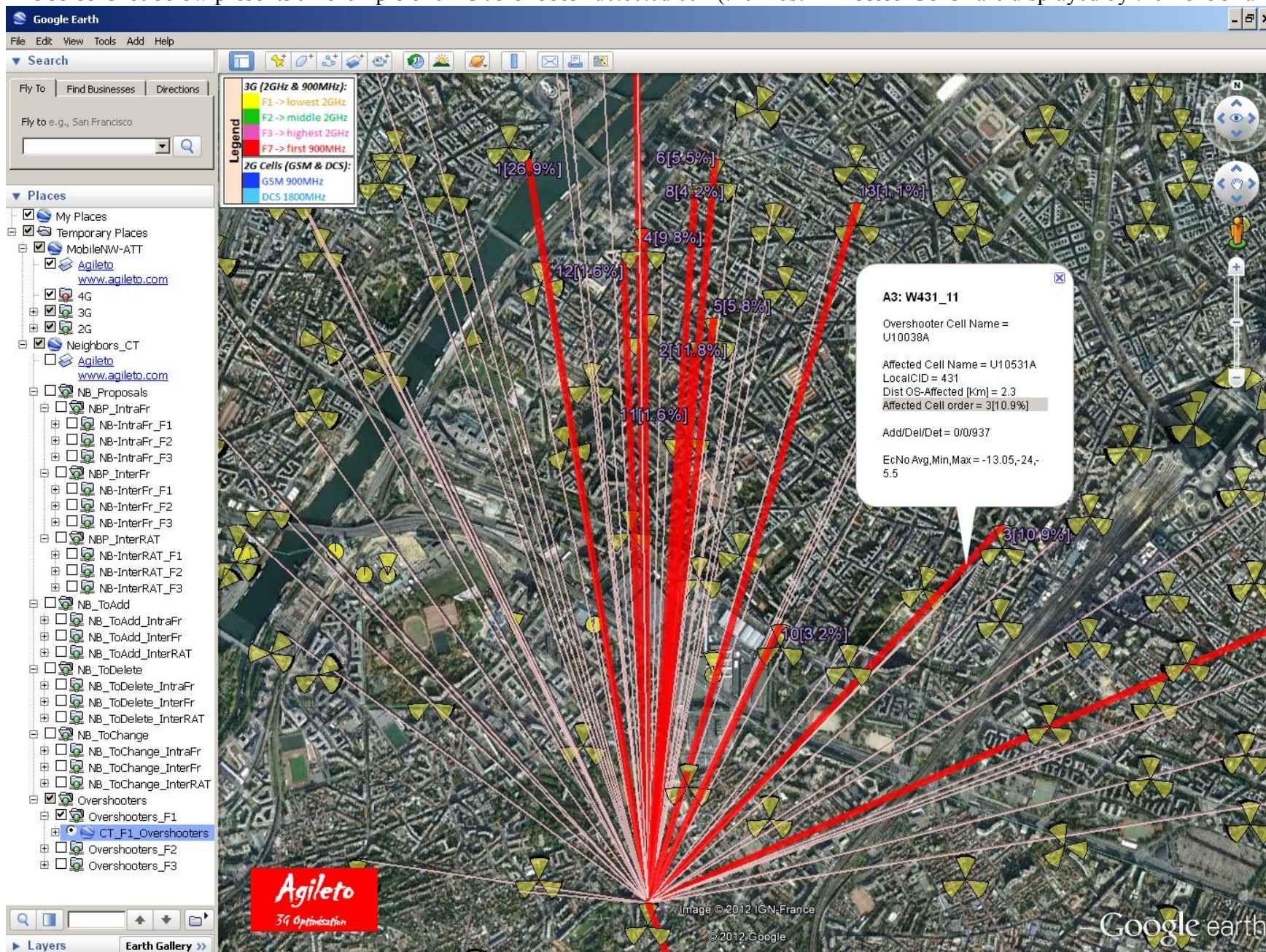
Example of neighbors **proposal** -> remark the **priorities** & the width of the neighbors lines meaning the **traffic weight** from cell source to cell target:



The same Source cell as before presenting the neighbors to be **deleted** based on the low traffic distribution (toward Target cells) on the real network:



The screenshot below presents an example of an **Overshooter** detected cell (the most “**Affected Cells**” are displayed by their **order** and “**weight**”):



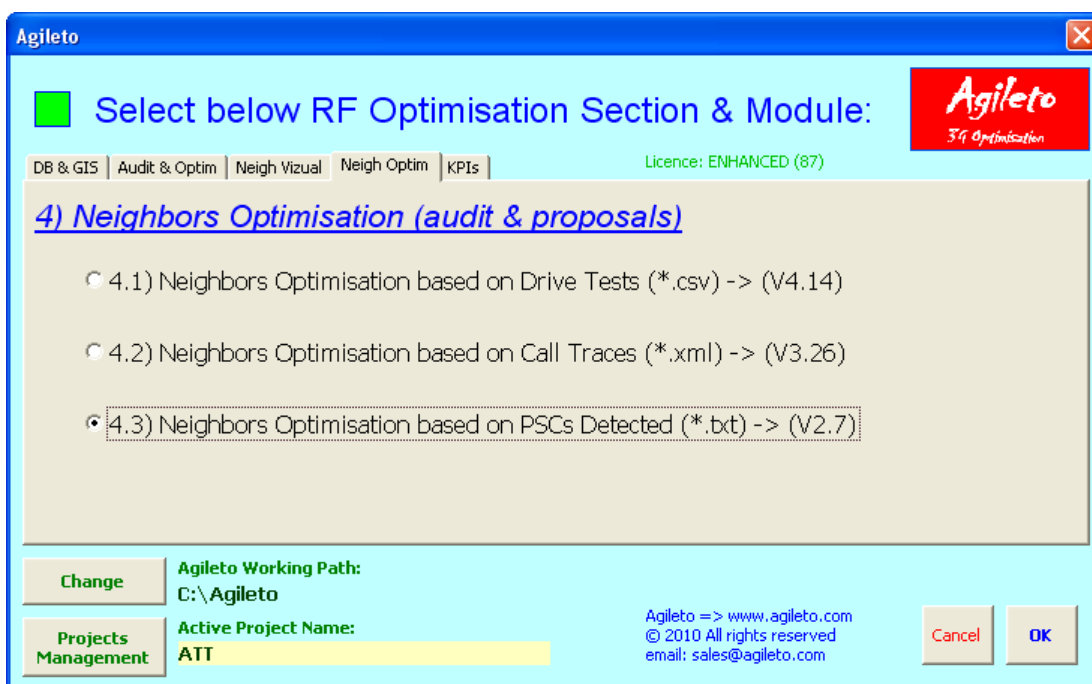
4.3) Neighbors Optimisation based on PSCs Detected

The purpose of this module is mainly to convert the PSCs “Detected” into their associated 3G cells [detected]; furthermore, this module checks if the associated 3G cell detected is already between the declared neighbors of the source cell; some other supplementary investigations are performed too (the distance source <-> target, the weighting factor as the percentage relating to the number of occurrences for the same Source – Target combinations, etc); the output results of this module in correlation with other additionally info may lead to decisions as to add (or not) neighbors the cells associated to specific PSCs detected; however this module is recommended to be used only as a temporary alternative to the modules [M4.1](#) / [M4.2](#) which are performing similar tasks but completing better this type of action.

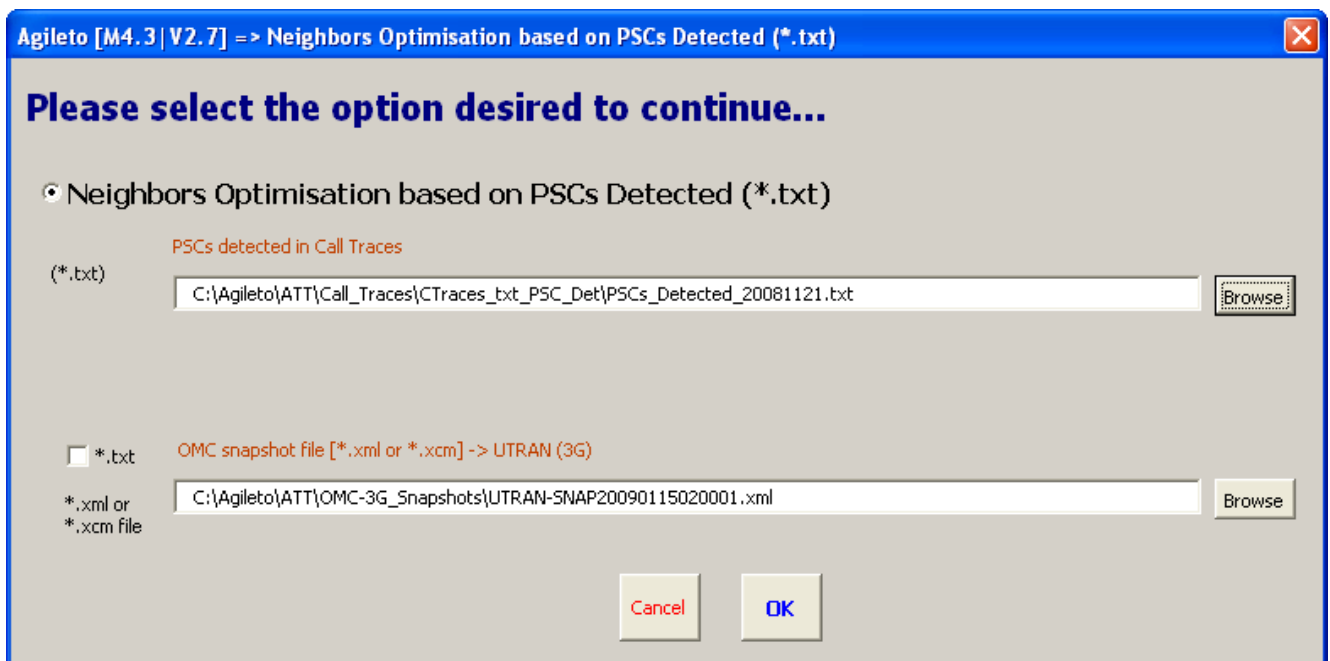
PSCs detected set may be the output of the Drive Tests, Monitoring or Call Traces analysis, therefore the format how they are provided may vary up to their source. However, the meaning of this type of the data is always the same, representing the set of the PSCs which are reported by the mobiles but which are not detected between the set of the PSCs related to the neighbors cells already declared to the “source” cell. Therefore, there is not at all important the source which provides the set of the PSCs detected as all of them can be processed identically. This module is taken a particularly format related to the list of the PSCs detected but other formats can be easier converted to this particular format and further the post-processing process remains the same. The format regarding the PSCs detected is described into the Annex named “[PSCs detected file format](#)”. This is the format related to the **File #6** (see chapter “[Before you start](#)”).



Choose Start option and after this, module M4.3:



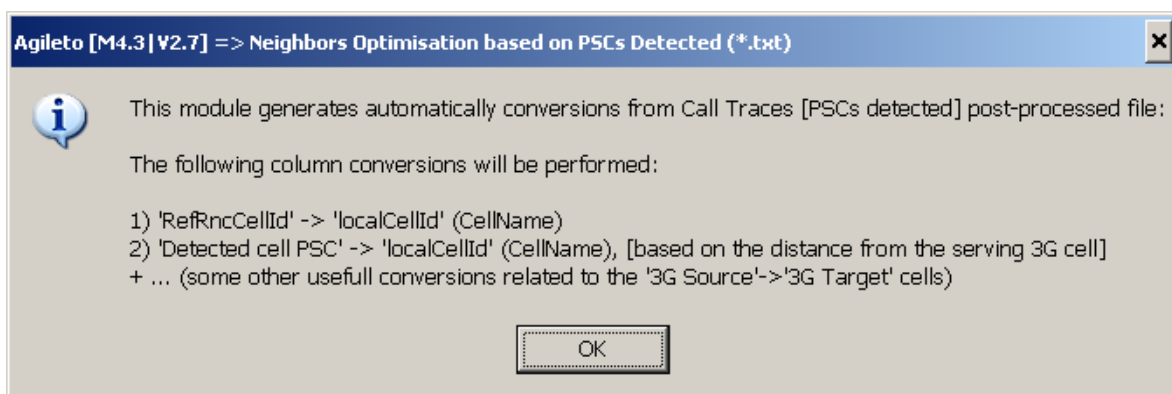
Choose OK and you will get the following window:



-> The *.txt file representing the PSCs detected (in Drive Tests/Monitoring/Call Traces) is the file described at the beginning of this document as **File #6** (see chapter “[Before you start](#)”). For more details regarding the format of this file please see the Annex named “[PSCs detected file format](#)”;

-> OMC 3G snapshot file contains the 3G/2G network configuration details and may be obtained in different formats: *.xml, *.xcm, *.txt - up to the 3G vendor - **File #1** (see chapter “[Before you start](#)”).

After providing the relevant information, choose OK and you will get the next message:



Choose OK and you will get the final PSCs Detected Neighbors Analysis and Optimisation report as it is presented into the next screenshots.

Example of PSCs Detected Neighbors Audit & Optimisation Report – Part 1:

PSCs_Detected_21112009_PSCs-Detected_processed.xls																				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Cell_Source	Cell_Target	RNC_Source	RNC_Target	sib11OrDchUsage	NewSib11OrDchValue	Method	Cluster Cell Source	Cluster Cell Target	Existing Cells Source & Target Validation	Neighbour Declaration Existing?	Source RNC	Source LocalCID	Source CellName	Source SC	Target RNC	Target LocalCID	Target CellName	Target SC	Distance [Km]	InsideBW Source/Target
184	W20852_21	W61081_11	207	207	sib11AndDch	Add	1-InCity	1-InCity	Validated	Yes	3G_CT15	20852	3G_Bartan	189	3G_CT15	61081	3G_Pantru	233	2.37	True/True
185	W20852_21	W61082_21	207	207	sib11AndDch	Add	1-InCity	1-InCity	Validated	Yes	3G_CT15	20852	3G_Bartan	189	3G_CT15	61082	3G_Pantru	235	2.37	True/False
186	W20852_21	W60542_21	207	207	sib11AndDch	Add	1-InCity	1-InCity	Validated	Yes	3G_CT15	20852	3G_Bartan	189	3G_CT15	60542	3G_Gander	245	5.09	False/True
187	W20852_21	W61083_31	207	207	sib11AndDch	Add	1-InCity	1-InCity	Validated	No	3G_CT15	20852	3G_Bartan	189	3G_CT15	61083	3G_City_B	237	2.37	True/False
188	W20852_21	W22992_21	207	207	sib11AndDch	Add	1-InCity	1-InCity	Validated	No	3G_CT15	20852	3G_Bartan	189	3G_CT15	22992	3G_Dantol	192	7.19	False/False
189	W20852_21	W60972_21	207	207	sib11AndDch	Add	1-InCity	1-InCity	Validated	No	3G_CT15	20852	3G_Bartan	189	3G_CT15	60972	3G_Matant	340	18.19	False/True
190	W20852_21	W64362_21	207	207	sib11AndDch	Add	1-InCity	1-InCity	Validated	No	3G_CT15	20852	3G_Bartan	189	3G_CT15	64362	3G_Parlont	468	7.37	False/True
191	W20852_21	W27282_21	207	207	sib11AndDch	Add	1-InCity	1-InCity	Validated	Yes	3G_CT15	20852	3G_Bartan	189	3G_CT15	27282	3G_Vanger	329	2.87	False/True
395																				
396	Agileto => www.agileto.com © 2009 All rights reserved (support@agileto.com) [M4.3[V2.7] => Neighbors Optimisation based on PSCs Detected (*.txt)																			
397	User Login: Admin Run Time: 05Dec2009 03:03:05-03:03:23 [18sec]																			
398	Input PSCs Detected file: C:\Agileto\Call_Traces\CTraces_txt_PSC_DetPSCs_Detected_21112009.txt																			
399	Input OMC Snapshot file: C:\Agileto\OMC-3G_Snapshots\UTRAN-SNAP20091125020001.xml																			
400	Input Agileto database file: C:\Agileto\3G&2G_Config\3G&2G_Config.xls																			
401	Output 3G-3G Neighbors Audit & Optimisation file: C:\Agileto\Call_Traces\NeighOpt_PSC_DetPSCs_Detected_21112009_PSCs-Detected_processed.xls																			
402																				

Few explanations regarding the structure and the format of the PSCs detected Neighboring Optimisation report presented above:

- The report contains at the end a summary info regarding the module version, processing time, inputs and output data, etc;
- On the left side, the first columns are formatted in such of way to be able to load immediately in MapInfo all the Source – Target combinations detected/selected (yellow background);
- The Clusters related to the Source/Target cells are following on the right side;
- There is a validation process for the both Source & Target cells meaning that if at least one cell doesn't exist (it is not declared) into OMC 3G snapshot file then the relation Source – Target is invalidated (this may happen in the case that Agileto reference database is updated with all the 3G cells planned for future deployments but the cells are not yet declared into the real OMC 3G network);
- There is a checking to see if the Source –Target combination is already declared as neighbor relationship into the snapshot;

Example of PSCs Detected Neighbors Audit & Optimisation Report – Part 2:

PSCs_Detected_21112009_PSCs-Detected_processed.xls																					
	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	Neighbour Declaration Existing?	Source RNC	Source LocalCID	Source CellName	Source SC	Target RNC	Target LocalCID	Target CellName	Target SC	Distance [Km]	InsideBW Source/Target	RefRncCellId	NbIFM	Detected cell SC	Occurrence	Occurrence / NbIFM [%]	Event Occ	EventOcc / NbIFM [%]	EcioAvg	EcioEvent Avg	EcioMax
1																					
184	Yes	3G_CT15	20852	3G_Bartan	189	3G_CT15	61081	3G_Pantru	233	2.37	True/True	207 20852 (189)	1272	233	572	44.97%	0	0.00%	-7.1	0	-3.5
185	Yes	3G_CT15	20852	3G_Bartan	189	3G_CT15	61082	3G_Pantru	235	2.37	True/False	207 20852 (189)	1272	235	328	25.79%	0	0.00%	-8.2	0	-4
186	Yes	3G_CT15	20852	3G_Bartan	189	3G_CT15	60542	3G_Gandei	245	5.09	False/True	207 20852 (189)	1272	245	191	15.02%	0	0.00%	-13.7	0	-7
187	No	3G_CT15	20852	3G_Bartan	189	3G_CT15	61083	3G_City_B	237	2.37	True/False	207 20852 (189)	1272	237	44	3.46%	0	0.00%	-13.0	0	-7.5
188	No	3G_CT15	20852	3G_Bartan	189	3G_CT15	22992	3G_Dantol	192	7.19	False/False	207 20852 (189)	1272	192	6	0.47%	0	0.00%	-21.0	0	-20.5
189	No	3G_CT15	20852	3G_Bartan	189	3G_CT15	60972	3G_Matant	340	18.19	False/True	207 20852 (189)	1272	340	4	0.31%	0	0.00%	-17.6	0	-16.5
190	No	3G_CT15	20852	3G_Bartan	189	3G_CT15	64362	3G_Parlon	468	7.37	False/True	207 20852 (189)	1272	468	2	0.16%	0	0.00%	-15.3	0	-14.5
191	Yes	3G_CT15	20852	3G_Bartan	189	3G_CT15	27282	3G_Vanger	329	2.87	False/True	207 20852 (189)	1272	329	1	0.08%	0	0.00%	-24.0	0	-24
395																					

- There are presented the following info for both (the Source & Target) cells:
 - RNC
 - LCID
 - Cell_Name
 - PSC
- Geographically information in regards with the Source – Target cells are provided:
 - Distance (Source – Target);
 - Inside Beamwidth Source / Target -> [this is a boolean checking if the Target cell is detected inside of the beamwidth coverage of the Source cell and reciprocally, if the Source cell is detected inside of the beamwidth of the Target cell];
- On the right side is following the data regarding the number of occurrences [numbers as well as weighted percentage] representing how many times [weight per one source/reference cell] a specific detected combination Source – Target occurred into the input data file by referencing to the same Source cell.

The final decision for adding (or not) a Source - Target combination [detected] as neighbor relationship may be based on the number of occurrences, their weighted contribution per the Source cell as well as looking to different other additionally information [EcioAvg, EcioMax, etc];

Investigation based on Cells KPIs in MapInfo & GoogleEarth representation

5.1) Generate MapInfo & GoogleEarth cells/sites objects based on KPIs values

The purpose of this module is to provide a quick visually representation into MapInfo and/or Google Earth between the performance [KPIs] of the 3G (2G) cells and their geographically representation and distribution. This may help to perform correlations and to identify quickly an issue that may affect a dedicated geographically region of the 3G (2G) network (Ex: external radio interference affecting a group of 3G cells from a dedicated geographically region, or to identify a general transmission issue which will be reflected into the bad performance for all the cells from the same region using the same [erroneous] transmissions lines, etc);

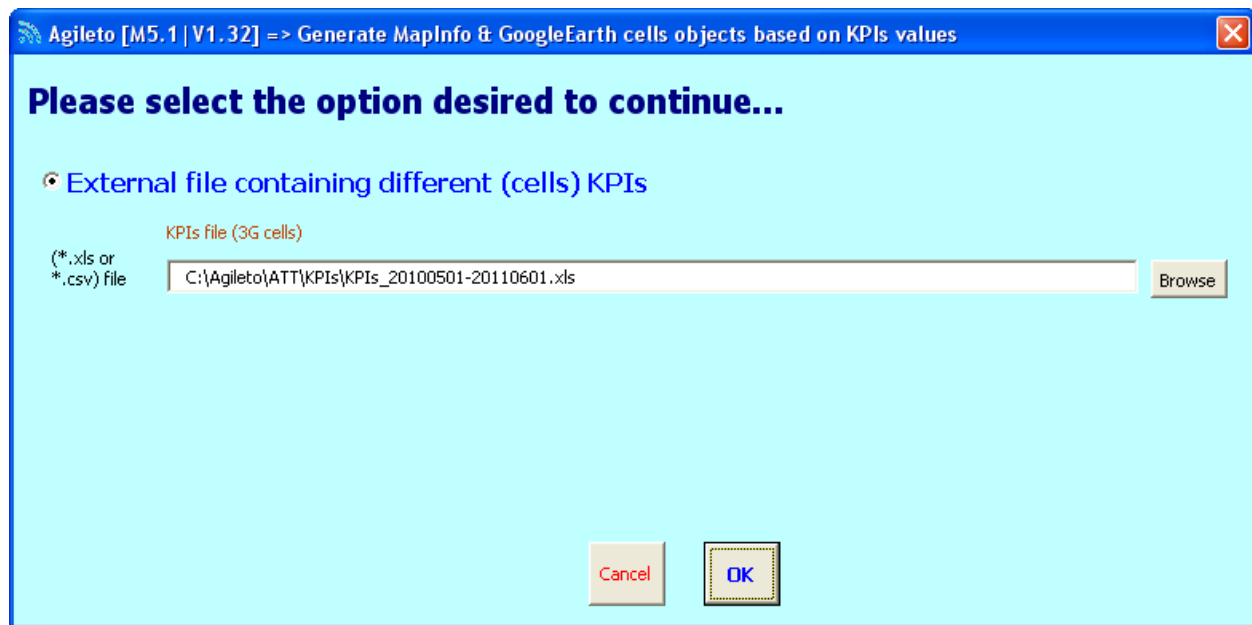
By using the potential of this module the 3G (2G) cells may be represented in MapInfo and/or Google Earth by adjusting their sector colors and/or their radius according with their KPIs values. This way it may be very easy to identify visually in MapInfo and/or Google Earth the absolute and relative performance of the 3G (2G) cells by comparisons with their neighbors. Some additionally explanation/details will be provided further during the description of this module.



Choose Start option and after this, module nr. 5.1)



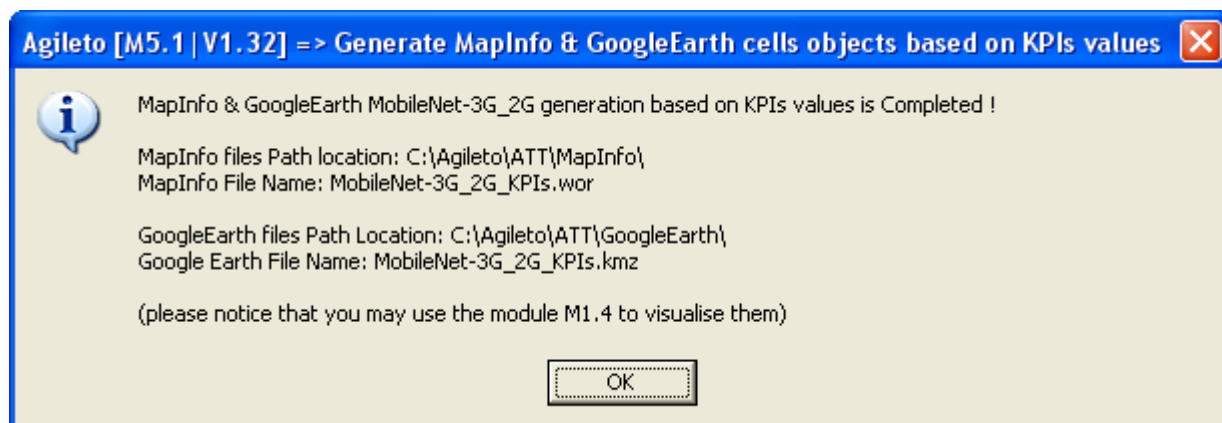
Choose OK and you will get the following window:



-> The KPIs file can be any usually KPIs Cell basis report file from the mobile operator monitoring system; this export file may contain different types of KPIs for many 3G (or 2G) cells taken at specific time or it may contain the same type of the KPI taken at different periods of times (example: CDR taken for different days). This is the **File #5** (See “[Before you start](#)”) and some details regarding this file format/structure may be checked into the Annex named “[KPIs file structure and format](#)”.

Now choose OK and the main window of this module will pop-up as it will be presented into the next screenshots with few examples. Here you have several options that you can choose and they will be explained further.

After choosing all desired parameters, choose OK and you will see where were saved the MapInfo and Google Earth associated KPIs output files, as per below.



Choose OK and then you may use the module M1.4 in order to view the KPIs values in MapInfo & Google Earth representation(s) like you may see as examples into following screenshots.

A) Example of one case when the KPI is CS_CDR [%] -> (KPI is expressed generally as percentage):

Agileto [M5.1 | V1.36] => Generate MapInfo & GoogleEarth cells objects based on KPIs values

Please customise 'Selected KPI' and 'Data Inputs' in order to generate KPIs cells objects

☒ **3G** <- OR -> ☐ **2G**

key
☒ Local_CID -> 3GCell_ID
☐ Cell Name ->
 Selected KPI -> CS_CDR

KPIMin=0.15% | KPIMax=11.53% | KPIMax=1.37%

Data Inputs:

☒ Present KPIs as percentage

KPI Name -> CS CDR
 Reference KPI value -> 1.37 %
 Reference Cell Radius [Km] -> 0.25
 Reference Cell BW [degrees] -> 50

☐ Generate Cell Radius proportionally with its KPI value
 Maximum Cell Radius [Km] -> 0.25

Legend: ☒ KPIs ascending color order ☐ KPIs descending color order

KPI <= Threshold_1 = 0.5 % ---> 
 KPI <= Threshold_2 = 1 % ---> 
 KPI <= Threshold_3 = 2 % ---> 
 KPI <= Threshold_4 = 5 % ---> 
 KPI <= Threshold_5 = 11.53 % ---> 

☒ Generate dedicated KPIs layers (ex: 3G_Cells_FX_KPIs.xxx)

Preview of the KPIs database; sheet=> KPIs_3G

3GCell_ID	Cell_Name	CS_CDR	CS_CSSR	CS_RAB
1017	AgiletoDemo1-X	0.0017	0.9987	564
1018	AgiletoDemo1-Y	0.0025	0.9991	758
1019	AgiletoDemo1-Z	0.0031	0.9995	646
1014	AgiletoDemo2-X	0.0031	0.8995	35
1015	AgiletoDemo2-Y	0.0161	0.9491	247
1016	AgiletoDemo2-Z	0.0055	0.9961	768
1023	AgiletoDemo3-X	0.0027	0.9981	458
1024	AgiletoDemo3-Y	0.0055	0.9992	579
1025	AgiletoDemo3-Z	0.0351	0.9997	735
1029	AgiletoDemo4-X	0.0073	0.9962	348
1030	AgiletoDemo4-Y	0.0027	0.9975	265
1031	AgiletoDemo4-Z	0.0054	0.9982	127
1035	AgiletoDemo5-X	0.0051	0.9986	89
1036	AgiletoDemo5-Y	0.0573	0.9995	470
1037	AgiletoDemo5-Z	0.0066	0.9992	553
1041	AgiletoDemo6-X	0.0067	0.9458	438
1042	AgiletoDemo6-Y	0.0031	0.8951	649
1043	AgiletoDemo6-Z	0.0045	0.9901	705
1044	AgiletoDemo7-X	0.0051	0.9921	205
1045	AgiletoDemo7-Y	0.1153	0.9967	357
1046	AgiletoDemo7-Z	0.0072	0.9987	473
1047	AgiletoDemo8-X	0.0073	0.9994	575
1048	AgiletoDemo8-Y	0.0065	0.9983	649
1049	AgiletoDemo8-Z	0.0047	0.9979	820
1050	AgiletoDemo9-X	0.0015	0.9993	428
1051	AgiletoDemo9-Y	0.0636	0.9941	208
1052	AgiletoDemo9-Z	0.0027	0.9964	507
1053	AgiletoDemo10-X	0.0041	0.9993	702
1054	AgiletoDemo10-Y	0.0171	0.9982	638
1055	AgiletoDemo10-Z	0.0022	0.9975	527

☒ Generate Google Earth files ☒ SPATIAL (3D) Google Earth output ☒ Generate MapInfo files KPI sheet: KPIs_3G

Cancel OK

Notice: MapInfo output is selected always by default, Google Earth output is selected optionally.

The following settings are available to be performed on the main form of this module:

Initial settings:

- Should be selected the desired sheet from all available into the KPIs file (top right selection ('**CS CDR**' into the previous example);
- The common **reference Key** should be selected as one between **Local_CID** and **Cell_Name** (KPIs reports may come with one or both of these keys); in above example the Local_CID has been selected;
- Should be selected the column associated with the **key** (in above example this was **LCID**);
- '**Selected KPI**' column associated should be performed with one of the headers (columns) available into the KPI report (Ex: **CS_CDR**);

Data Inputs:

- If the KPI is generally represented like a percentage [%] then the corresponding field (**Present KPI as percentage**) is recommended to be ticked in order to have a better visualization on the selected input data;
- The name of the KPI (a short string) should be data-filled into the field "**KPI Name**"; this name will be used while generating MapInfo & Google Earth files by adding a new column representing the associated KPIs information.
- There are three sets of the input data, as following:
 - **Reference KPI value** -> this is the value of the KPI associated with the next field "Reference Cell Radius [Km]" meaning that a cell having this KPI value will be represented with the radius described by the next field;
 - **Reference Cell Radius [Km]** -> this represents the radius of the cells having their KPI values equal to the value contained into the previous field "Reference KPI value";
 - **Reference Cell BW [degrees]** -> this is the beam-width used to represent the sectors of the cells (centered on their azimuth angle);

Generate Cell Radius proportionally with its KPI value:

- If it is desired to represent the cells radius variable proportionally with their KPIs value then this field should be ticked (selected);

Legend:

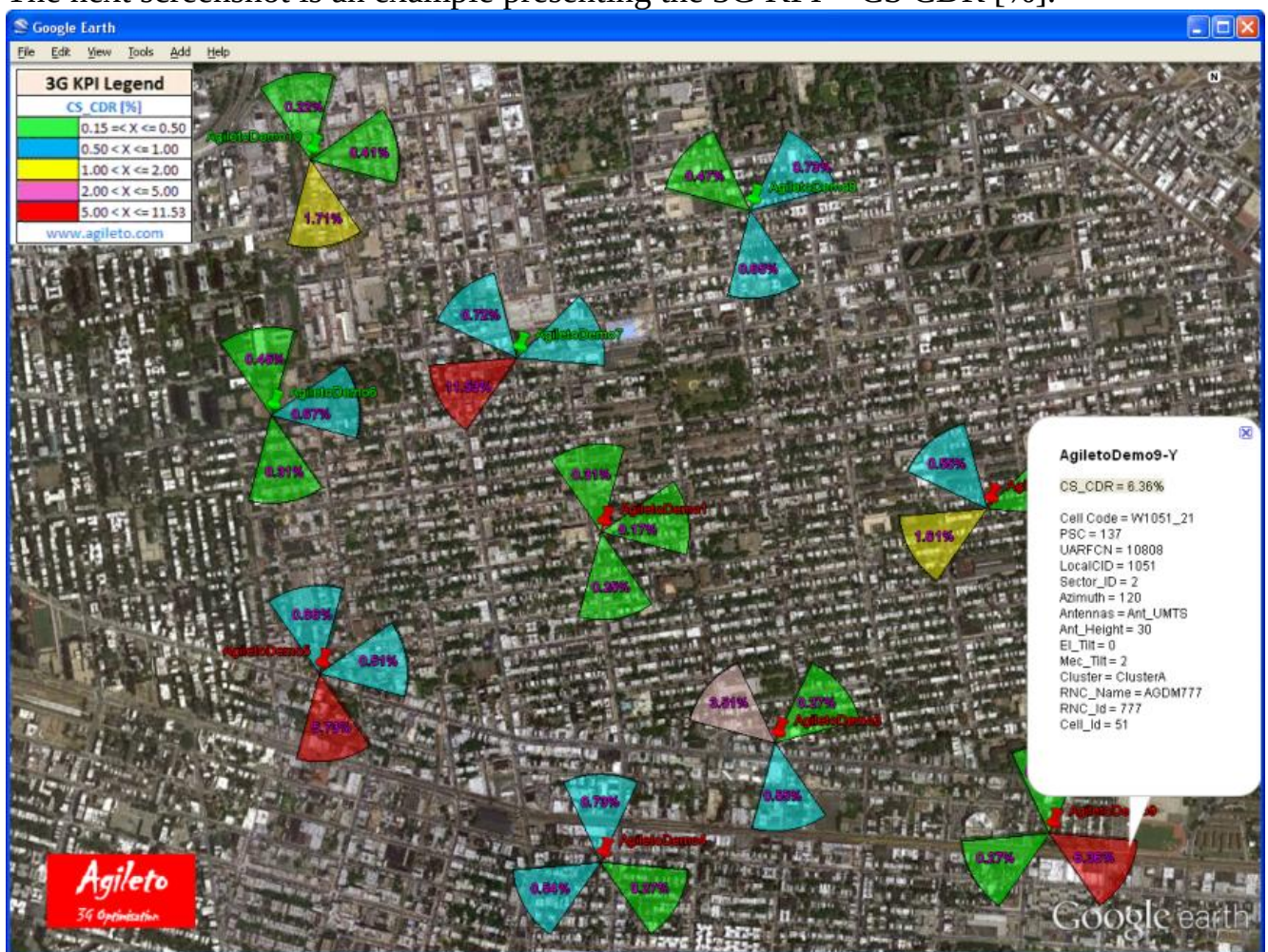
- Up to the type of the KPI it will be selected **KPIs ascending** or **descending color order** -> the difference between these two (2) settings is reflected in which color is associated to the minimum KPI value (**green** or **red**);
- Should be setup the four (4) **thresholds** (ranges/intervals) in order to establish the association between the legend color and the KPI value;

Generate dedicated 3G/2G KPIs layers

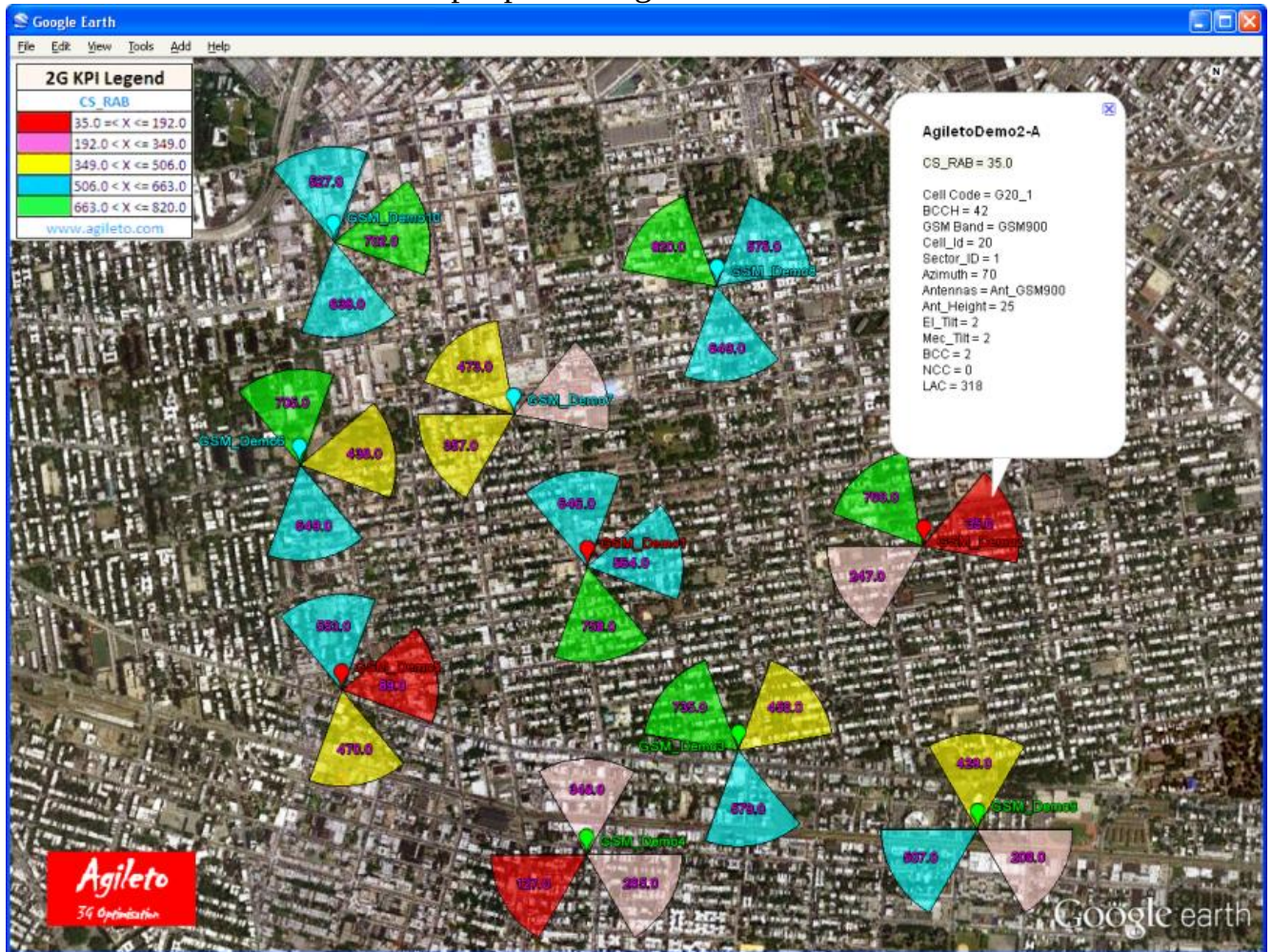
- If this field is ticked (selected) then the MapInfo & Google Earth layers generated for the KPIs representation purposes are dedicated only for this purpose; in contrary case (un-ticked) then the default MapInfo & Google Earth 3G/2G cells layers (*.tab & *.kmz files) used for the general representation of the 3G/2G network(s) and for the neighboring purpose too, are overwritten with the new layers generated for the KPIs MapInfo & Google Earth purpose representation.

Each time when a new set of KPIs is (re)presented in Google Earth the KPIs legend [presenting the network type (3G or 2G), the KPI name (Ex: CS CDR[%]) and the thresholds used together with their associated colors] is displayed on the top left corner of the screen (see examples on the next two screenshots).

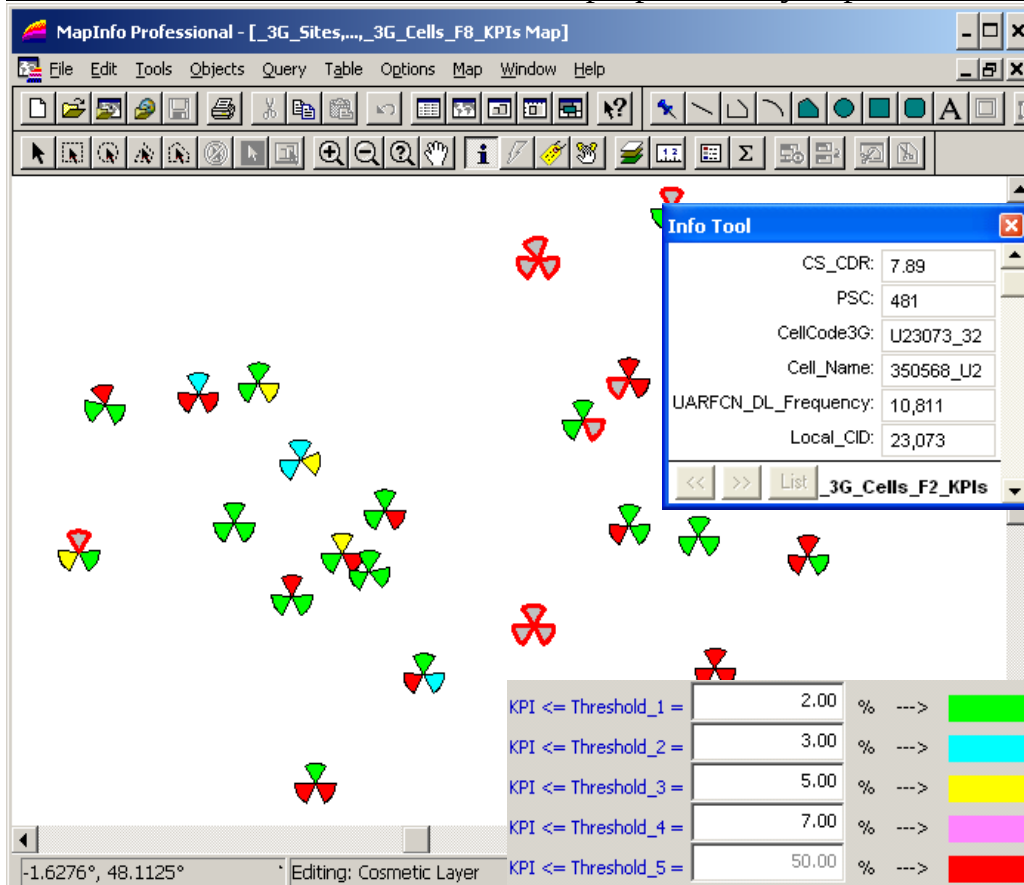
The next screenshot is an example presenting the 3G KPI = CS CDR [%]:



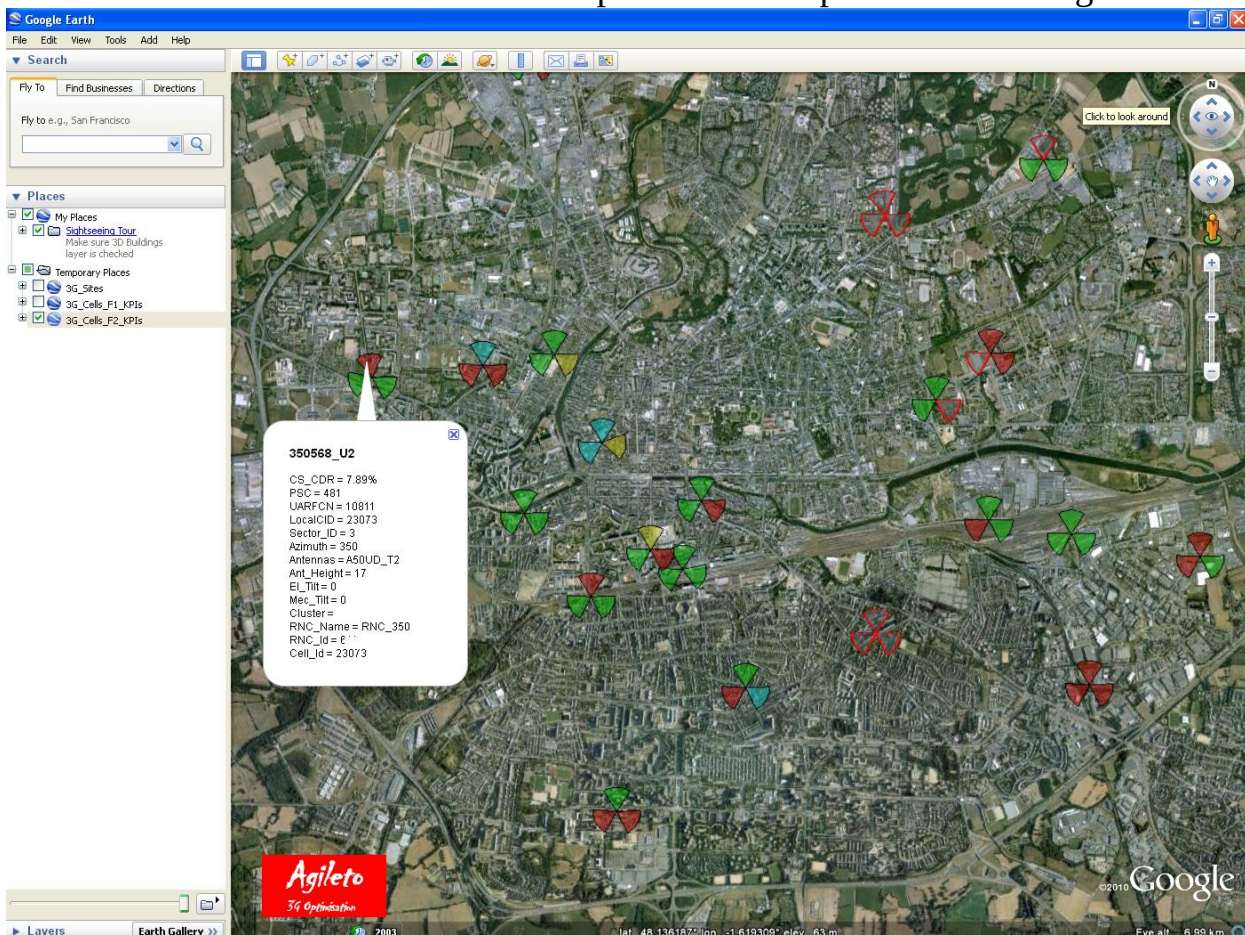
The next screenshot is an example presenting the 2G KPI = CS RAB:



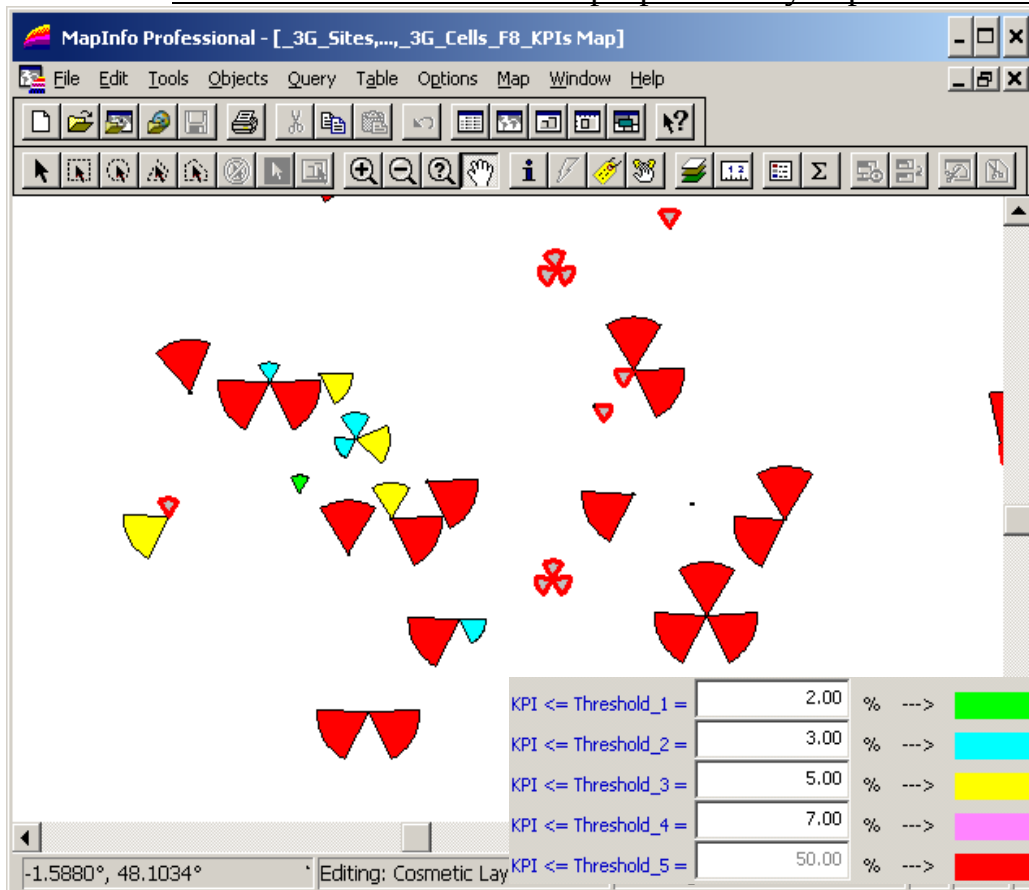
Below it is an example of the Case A) => KPI is CS_CDR [%] when the 3G Cells radius are constant but their colors are proportionally dependent on their CDR values:



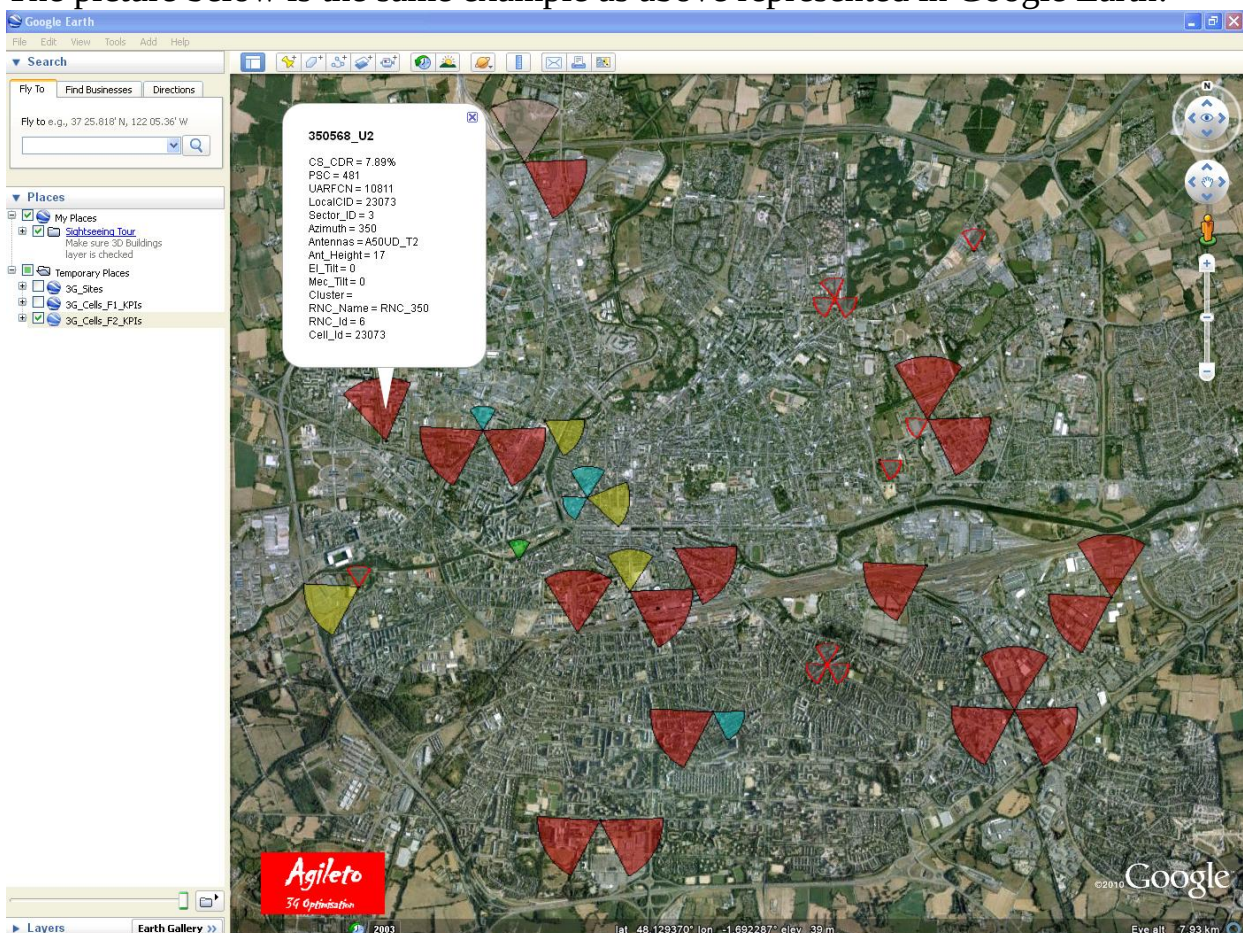
The screenshot below is the same example as above represented in Google Earth:



Below it is presented in MapInfo the same area presenting CS_CDR [%] when the 3G Cells have both radius and their colors proportionally dependent on their CDR values:



The picture below is the same example as above represented in Google Earth:



B) Example of one case when the KPI is CS_RB_Setup_Success -> (KPI is expressed generally as a number)

Agileto [M5.1 | V1.23] => Generate MapInfo & GoogleEarth cells objects based on KPIs values

Please customise 'Selected KPI' and 'Data Inputs' in order to generate 3G cells/sites

3G

3G Database => Key Columns correspondence Preview of 3G KPIs database; sheet=> CS RB setup sucess

key

Local_CID -> ☐
 Cell_Name -> ☒ CellName
 Selected KPI -> 5/1/2010

KPIMin=0.00 | KPIMax=4118.00 | KPISvg=365.32

Data Inputs: ☐ Present KPIs as percentage

KPI Name -> CS_RB_Success

Reference KPI value -> 200

Reference Cell Radius [Km] -> 0.25

Reference Cell BW [degrees] -> 50

☐ Generate Cell Radius proportionally with its KPI value

Maximum Cell Radius [Km] -> 0.25

Legend: ☐ KPIs ascending color order ☒ KPIs desscending color order

KPI <= Threshold_1 = 20 --->

KPI <= Threshold_2 = 50 --->

KPI <= Threshold_3 = 200 --->

KPI <= Threshold_4 = 400 --->

KPI <= Threshold_5 = 4118.00 --->

☒ Generate dedicated 3G KPIs layers (3G_Cells_FX_KPIs.xxx)

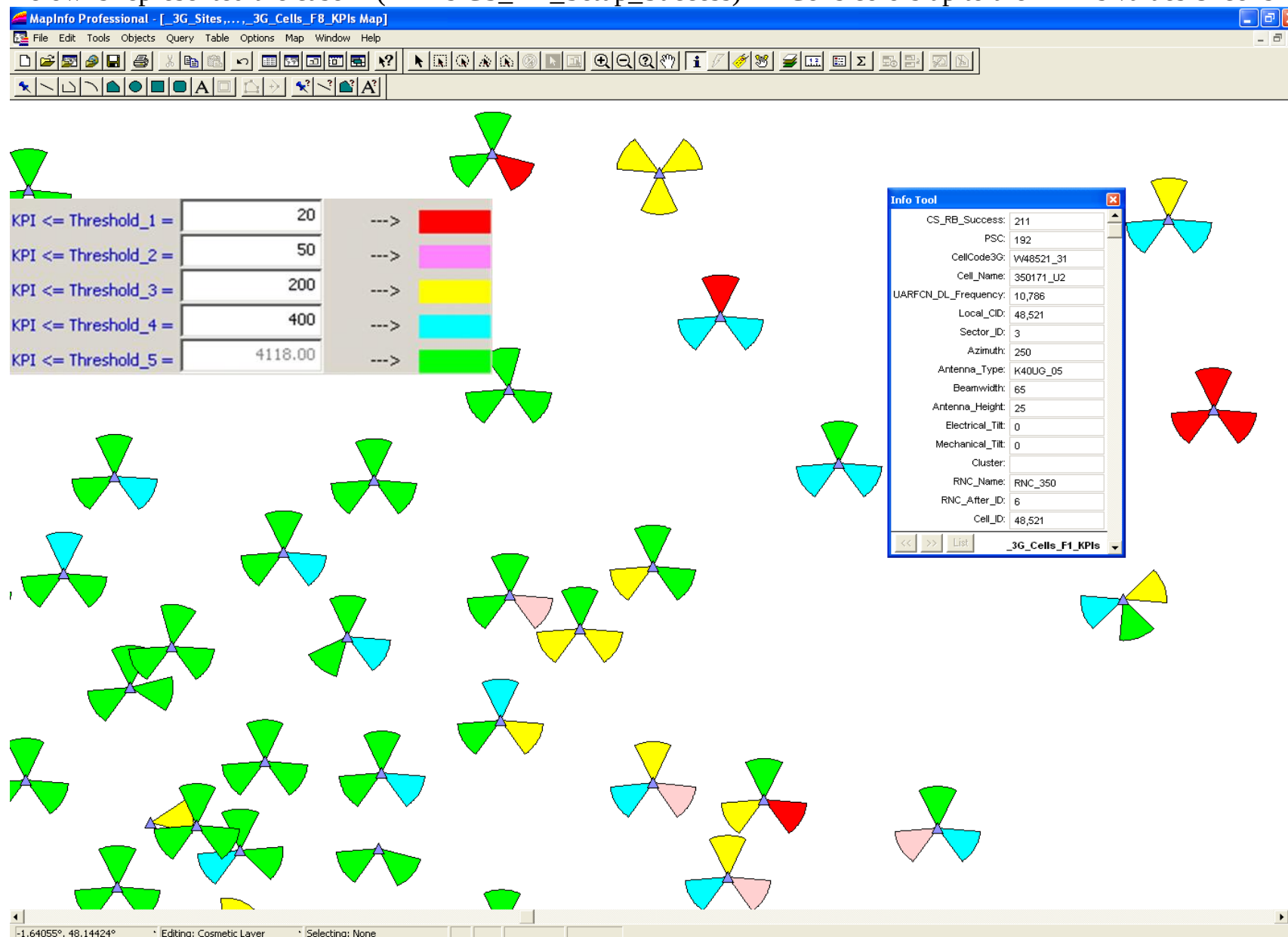
CellName	5/1/2010	5/2/2010	5/1/2010	5/2/2010	5/3/2010
220043_00	3814	2748	3814	2748	5518
220043_01	102	33	102	33	109
220043_10	742	572	742	572	998
220043_11	19	9	19	9	14
220043_20	656	615	656	615	982
220043_21	13	10	13	10	29
220608_00	0	0	0	0	0
290038_00	27	11	27	11	28
290038_10	87	52	87	52	71
290038_20	29	27	29	27	111
290362_00	246	163	246	163	269
290362_01	0	0	0	0	0
290362_10	686	466	686	466	1123
290362_11	0	0	0	0	0
290362_20	557	463	557	463	1015
290362_21	0	0	0	0	0
350001_00	63	30	63	30	181
350001_10	58	42	58	42	86
350001_20	107	60	107	60	132
350010_00	537	411	537	411	641
350010_10	41	57	41	57	81
350010_20	147	28	147	28	91
350013_00	409	343	409	343	1183
350013_10	776	554	776	554	1143
350013_20	446	406	446	406	1306
350014_00	157	102	157	102	257
350014_01	1	3	1	3	7
350014_10	1748	1410	1748	1410	2600
350014_11	34	25	34	25	31
350016_00	96	78	96	78	83
350016_10	20	17	20	17	23
350016_20	113	67	113	67	94
350017_00	199	160	199	160	387

3G sheet: CS RB setup sucess

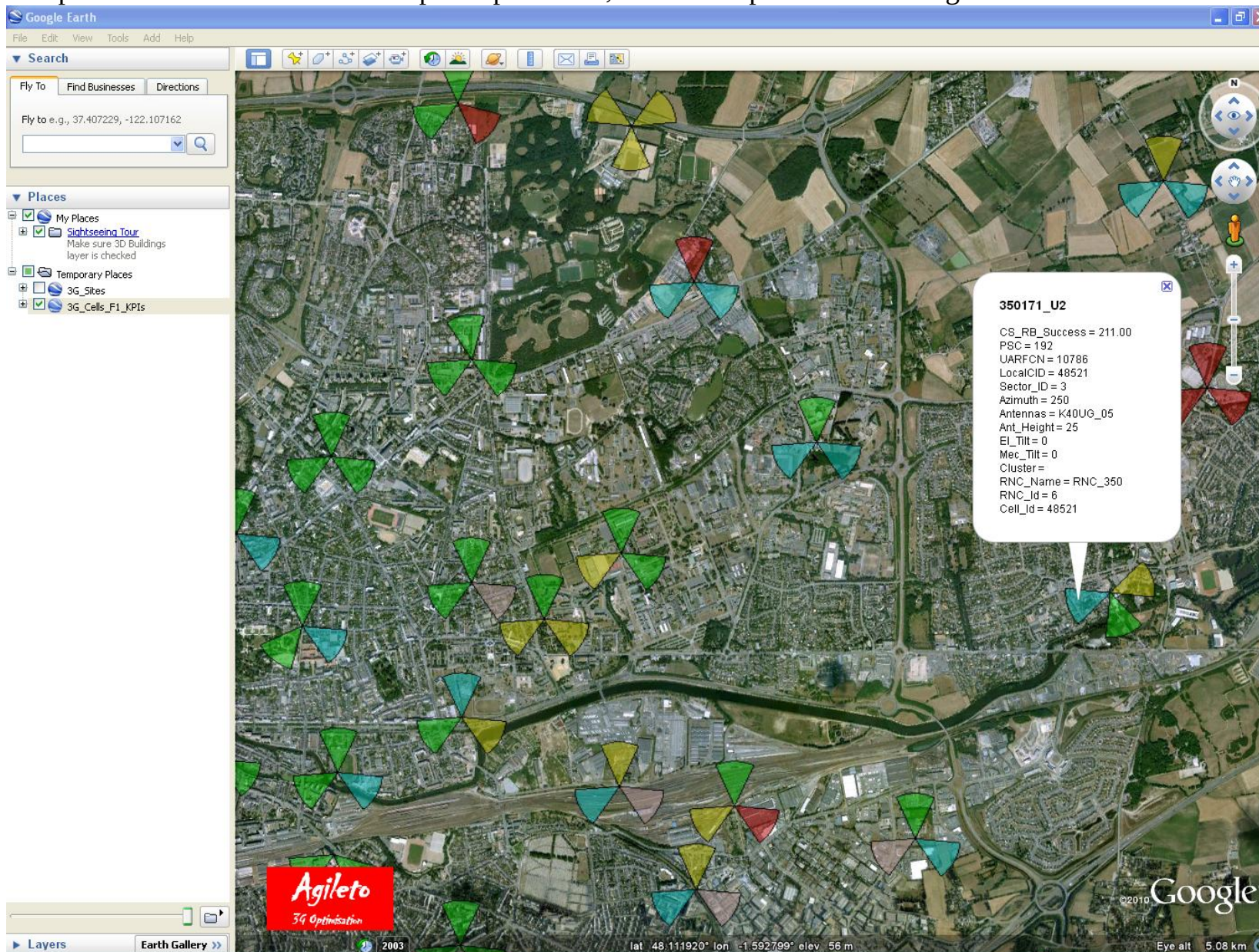
☒ Generate MapInfo files ☒ Generate Google Earth files

Cancel OK

Below is represented the case B (KPI is CS_RB_Setup_Success) => Cells colors up to their KPIs values & cells radius are constant!



The picture below is the same example as per above, this time represented in Google Earth:



Annexes

Agileto reference database [MobileNW_Config.xls]

Agileto reference database file is an Excel file containing two sheets named as following:

- **3G** -> this sheet contains the data related to the 3G network;
- **2G** -> this sheet contains the data related to the 2G network;

The structure for each database [3G/2G] sheet is as per it is presented into the following screenshots. Agileto installation kit is coming with a file name MobileNW_Config_Template.xls which already has this structure (template) which may be used straightway by the module M1.1 in order to generate/customize Agileto reference database according with the specific data for each client (mobile operator). Each header of the column from each sheet (3G & 2G) contains explicative comments describing if the field & data related are mandatory to be filled or not + other useful information.

The structure of the sheet 3G: Part 1

1	2	3	4	5	6	7	8	9	10	11	12	13
Cell_Code	Local_CID	Frequency_Layer	Long_WGS84	Lat_WGS84	Sector_ID	Azimuth	Cell_Name	NodeB_Name	Cell_ID	PSC	RNC_Name	RNC_ID
W204071_11	204071	1	6.065904814	40.08763979	1	50	PATROL_11	PATROL	4071	9	RNC_Faster_2	27
W204072_21	204072	1	6.065904814	40.08763979	2	320	PATROL_21	PATROL	4072	10	RNC_Faster_2	27
U204074_12	204074	2	6.065904814	40.08763979	1	50	PATROL_12	PATROL	4074	9	RNC_Faster_2	27
U204075_22	204075	2	6.065904814	40.08763979	2	320	PATROL_22	PATROL	4075	10	RNC_Faster_2	27
W245111_11	245111	1	5.079404669	40.72036659	1	25	AEROPORT_11	AEROPORT	45111	420	RNC_Speedy_1	13
W245112_21	245112	1	5.079404669	40.72036659	2	185	AEROPORT_21	AEROPORT	45112	421	RNC_Speedy_1	13
W245113_31	245113	1	5.079404669	40.72036659	3	280	AEROPORT_31	AEROPORT	45113	503	RNC_Speedy_1	13
U245114_12	245114	2	5.079404669	40.72036659	1	25	AEROPORT_12	AEROPORT	45114	420	RNC_Speedy_1	13
U245115_22	245115	2	5.079404669	40.72036659	2	185	AEROPORT_22	AEROPORT	45115	421	RNC_Speedy_1	13
U245116_32	245116	2	5.079404669	40.72036659	3	280	AEROPORT_32	AEROPORT	45116	503	RNC_Speedy_1	13

- The yellow columns are updated from the OMC snapshots each time while running module M2.1 “Audit and Sanity Check”;
- The green columns should be generated/updated initially by using the module M1.1 from external databases (File # 2);

The structure of the sheet 3G: Part 2

1	2	3	4	5	6	7	14	15	16	17	18	19	20
Cell_Code	Local_CID	Frequency_Layer	Long_WGS84	Lat_WGS84	Sector_ID	Azimuth	Cluster	Antenna_Type	Beamwidth	Antenna_Height	Electrical_Tilt	Mechanical_Tilt	Cell existing into *.xml' Snapshot
W204071_11	204071	1	6.065904814	40.08763979	1	50	Cluster_Test	UMTS_K739630	65	25	4	2	1
W204072_21	204072	1	6.065904814	40.08763979	2	320	Cluster_Test	UMTS_K739630	65	24	5	0	1
U204074_12	204074	2	6.065904814	40.08763979	1	50	Cluster_Test	UMTS_K739630	65	25	4	2	1
U204075_22	204075	2	6.065904814	40.08763979	2	320	Cluster_Test	UMTS_K739630	65	24	5	0	1
W245111_11	245111	1	5.079404669	40.72036659	1	25	Cluster_Test	UMTS_K739630	65	30	4	2	0
W245112_21	245112	1	5.079404669	40.72036659	2	185	Cluster_Test	UMTS_K739630	65	29	6	0	0
W245113_31	245113	1	5.079404669	40.72036659	3	280	Cluster_Test	UMTS_K739630	65	27	6	0	0
U245114_12	245114	2	5.079404669	40.72036659	1	25	Cluster_Test	UMTS_K739630	65	30	4	2	0
U245115_22	245115	2	5.079404669	40.72036659	2	185	Cluster_Test	UMTS_K739630	65	29	6	0	0
U245116_32	245116	2	5.079404669	40.72036659	3	280	Cluster_Test	UMTS_K739630	65	27	6	0	0
Last updated today: 21Jan2010 12:24, with the data from the 3G snapshot: C:\Agileto\OMC-3G_Sna							Mandatory field & data to be filled initially:						
3G Cells detected into 3G Excel config file: 4541							a) 2GHz band [1 to 6];						
3G Cells detected into snapshot OMC file: 1347							b) 900MHz band [7 to 10]						
3G Cells detected in common (Excel & OMC) files: 1334							It is updated automatically from OMC 3G snapshot						
3G Cells detected in common (Excel & OMC) files with discrepancies and corrected: 6							files while running "Audit and Sanity Check" feature.						
Last manual updated 3G data: 24February2010 21:50 (3G sheet template)													

- The grey columns contain optionally info and they may be updated by using the module M1.1 from external databases (File # 2);
 - At the end of the enumerations of all the 3G cells there is a blank line marking the end of the definitions of the 3G cells and then is following a summary info presenting the comparison of that 3G data with the 3G data retrieved from the last used OMC snapshot file; this summary is updated each time while running the module M2.1 "Audit and Sanity Check";
 - Each 3G cell is **unique** identified by its **Local_CID** as a key reference when searching in multiple databases;
Notice: another unique reference key for the **3G cells** may be represented by the combination: **RNC_ID + Cell_ID**;
 - The first column named **Cell_Code** is unique allocated for each 3G cell and it is generated/updated automatically by the tool as following:
 - **3G Cell_Code** = Frq_layer associated **Letter** + **Local_CID** + "_" + **Sector_ID** + **Frequency layer**
 - In case that a 3G Cell doesn't have geographically coordinates (Long_WGS84/Lat_WGS84) data filled then there is a prefix "**MC-**" (stands for **Missing Coordinates**) which is added to the standard Cell_Code described previously;
 - The conventions for the **Frequency Layer** allocations are as they are presented above into the comment of this cell;
- UMTS frequencies in **2GHz** band are allocated with **layers 1 to 6** while **900MHz** band are allocated the **layers 7 to 10**.

The structure of the sheet 2G: Part 1

1	2	3	4	5	6	7	8	9	10	11	12	13
Cell_Code	Cell_ID	Long_WGS84	Lat_WGS84	Sector_ID	Azimuth	Cell_Name	Site_Name	LAC	bcch	ncc	bcc	bsic
G17464_1	17464	6.065904814	40.08763979	1	50	ALPE_1	ALPE	2112	13	0	0	0
G42421_2	42421	6.065904814	40.08763979	2	320	ALPE_2	ALPE	2112	15	0	5	5
G21021_1	21021	6.068321632	40.09353808	1	0	PAIAN_NORD_1	PAIAN_NORD	2112	11	0	1	1
G21022_2	21022	6.068321632	40.09353808	2	40	PAIAN_NORD_2	PAIAN_NORD	2112	6	0	3	3
G21024_3	21024	6.068321632	40.09353808	3	100	PAIAN_NORD_3	PAIAN_NORD	2112	19	0	1	1
G50211_1	50211	5.572782575	40.17392392	1	210	PATROL_1	PATROL	4225	14	0	1	1
G19061_2	19061	5.572782575	40.17392392	2	260	PATROL_2	PATROL	4225	5	0	0	0
G58621_3	58621	5.572782575	40.17392392	3	315	PATROL_3	PATROL	4225	12	0	0	0
D14050_1	14050	5.73670236	40.19088859	1	40	ALMA_D1	ALMA	4225	591	1	0	8
D14051_2	14051	5.73670236	40.19088859	2	310	ALMA_D2	ALMA	4225	587	0	5	5
G40377_1	40377	5.726080322	40.19106007	1	120	LORRAINE_1	LORRAINE	4225	18	0	3	3
G61965_2	61965	5.726080322	40.19106007	2	220	LORRAINE_2	LORRAINE	4225	9	0	2	2
G63610_3	63610	5.726080322	40.19106007	3	320	LORRAINE_3	LORRAINE	4225	7	1	3	11

Last updated today: 04Feb2010 02:07, after updating with 2G OMC Export data file: C:\Agileto\3G&2G_Config\2G-OMC\OMC-2G_Export_20100203.csv

Last updated today: 21Jan2010 12:24, with the data from the 3G snapshot: C:\Agileto\OMC-3G_Snapshots\RNC_20100114.xcm

2G Cells detected into 2G Excel config file: 408

2G Cells detected into snapshot OMC file: 1501 (including duplicated 2G cells into many RNCs)

2G Cells detected in common (Excel & OMC) files: 501

2G Cells detected in common (Excel & OMC) files with discrepancies: 0

2G Cells detected only in OMC file: 1000

Last manual updated 2G data: 24February2010 21:50 (2G sheet template)

- The yellow columns may be updated from the 2G network OMC export files while running the module M2.1 “Audit and Sanity Check” or during the regular updates of Agileto reference database by using external databases (Excel files);
- The green columns should be generated/updated initially by using the module M1.1 from external databases (**File # 2**);
- ‘bsic’ column is not mandatory to be included into the structure of this file;
- Each 2G cell is unique identified by its **Cell_ID** as a key reference when searching in multiple databases;

The structure of the sheet 2G: Part 2

1	2	3	4	5	6	7	14	15	16	17	18	19	20
Cell_Code	Cell_ID	Long_WGS84	Lat_WGS84	Sector_ID	Azimuth	Cell_Name	Antenna_Type	Beamwidth	Antenna_Height	Electrical_Tilt	Mechanical_Tilt	Cell existing into ".xml" Snapsh	Cell existing into 2G OMC export
G17464_1	17464	6.065904814	40.08763979	1	50	ALPE_1	GSM_K737623	65	14.5	-4	4	1	1
G42421_2	42421	6.065904814	40.08763979	2	320	ALPE_2	GSM_K737623	65	14.5	-4	4	1	1
G21021_1	21021	6.068321632	40.09353808	1	0	PAIAN_NORD_1	GSM_K737623	65	16.23	-5	1	1	1
G21022_2	21022	6.068321632	40.09353808	2	40	PAIAN_NORD_2	GSM_K737623	65	16.39	-2	3	1	1
G21024_3	21024	6.068321632	40.09353808	3	100	PAIAN_NORD_3	GSM_K737623	65	16.23	-5	0	1	1
G50211_1	50211	5.572782575	40.17392392	1	210	PATROL_1	GSM_K737623	65	25.7	-4	0	1	1
G19061_2	19061	5.572782575	40.17392392	2	260	PATROL_2	GSM_K737623	65	25.7	-6	0	1	1
G58621_3	58621	5.572782575	40.17392392	3	315	PATROL_3	GSM_K737623	65	17.5	-6	0	1	1
D14050_1	14050	5.73670236	40.19088859	1	40	ALMA_D1	DCS_K62DGU04	65	31.9	-6	0	1	1
D14051_2	14051	5.73670236	40.19088859	2	310	ALMA_D2	DCS_K62DGU04	65	31.9	-4	0	1	1
G40377_1	40377	5.726080322	40.19106007	1	120	LORRAINE_1	GSM_K737623	65	27	-6	0	1	1
G61965_2	61965	5.726080322	40.19106007	2	220	LORRAINE_2	GSM_K737623	65	27	-5	0	1	1
G63610_3	63610	5.726080322	40.19106007	3	320	LORRAINE_3	GSM_K737623	65	27	-5	0	1	1

- At the end of the enumerations of all the 2G cells (see the previous picture above) there is a blank line marking the end of the definitions of the 2G cells; then it is following a summary info presenting the comparison between that 2G data and the 2G data retrieved from the 3G OMC snapshots and or 2G OMC export files (see on the above picture the last two columns names); this summary is updated each time while running the module M2.1 “Audit and Sanity Check”;
- The first column named **Cell_Code** is unique allocated for each 2G cell and it is generated/updated automatically by the tool as following:
 - **2G Cell_Code** = 2G Frequency Band **Letter** (**G** -> 900MHz / **D** -> 1800MHz) + **Cell_ID** + “_” + **Sector_ID**;
 - In case that a 2G Cell doesn’t have data filled the geographically coordinates (Long_WGS84/Lat_WGS84) then there is a prefix “**MC-**” (stands for **M**issing **C**oordinates) which is added to the standard Cell_Code described previously;

General conclusions & recommendation related to Agileto reference database file:

- The green columns are data-filled initially by using the module M1.1 from External databases (**File # 2**);
- The yellow columns are regularly updated from OMC 3G snapshot file & 2G OMC export files every time while running the module M2.1 (Audit & Sanity Check); that time the summary info is updated accordingly for each database (3G & 2G);
- For the best usage (representation in MapInfo/GoogleEarth) the grey columns are suggested to be always provided, too.

Drive Tests measurements (scanner/mobile) file

The Drive Tests measurements files are *.csv files which may be accepted with two types of formats (structure), as following:

- **Top_X in line format;** -> the Top_X best servers detected at one time are presented into one single line;
- **Top_X different lines format;** -> the Top_X best servers detected at one time are presented in different lines one after the other;

Up to the acquisition / processing drive test tools, the formats accepted by Agileto tool for the Drive Test measurement files (Optimisation option) may be one of the types a) or b) mentioned above which will be described in details below.

Additionally to the Top_X best servers (which may be formatted in one of the cases “a” or “b” mentioned above) the Drive Tests measurements files should contain always the Time_Stamp & GPS information columns, as following:

Time_Stamp / GPS Lat / GPS Lon;

Obs:

- 1) The three above mentioned columns are mandatory but the headers/names of these columns are not mandatory to be the same.
- 2) The content of the column “Time_Stamp” should be a string in any desired format; this info is used just for the tracking purpose but doesn’t play any role into analysis/optimization activity.

If the Drive Tests measurements (*.csv) files are open in Excel they should have the following format structure (3G and 2G are different meaning that there are specific headers/columns string names for 3G and other specific strings for 2G):

A) 3G case: => Top X in line format:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Time_Stamp	GPS Lat	GPS Lon	Top 1 SC	Top 1 CPICH Ec/No	Top 1 CPICH RSCP	Top 2 SC	Top 2 CPICH Ec/No	Top 2 CPICH RSCP	Top 3 SC	Top 3 CPICH Ec/No	Top 3 CPICH RSCP	Top 4 SC	Top 4 CPICH Ec/No	Top 4 CPICH RSCP	Top 5 SC	Top 5 CPICH Ec/No	Top 5 CPICH RSCP
12	15-May-2011 11:27:46	45.75878	4.842354	104	-5.16756	-81.217	456	-18.9969	-95.0463	64	-19.8069	-95.8563	448	-22.2987	-98.3479	155	-24.8607	-100.91
13	15-May-2011 11:27:47	45.75896	4.842354	104	-5.65841	-75.6307	456	-19.8285	-89.8007	448	-20.5098	-90.482	64	-24.1883	-94.1606	155	-24.8496	-95.1662
14	15-May-2011 11:27:48	45.75914	4.842354	104	-5.25487	-72.2272	456	-20.1049	-87.0772	448	-21.6845	-88.6568	64	-24.3001	-91.2723			
15	15-May-2011 11:27:49	45.75914	4.842611	104	-5.70987	-64.9831	456	-19.5767	-78.8499	448	-20.3638	-79.637	64	-24.906	-82.234			
16	15-May-2011 11:27:50	45.75914	4.842868	104	-5.03829	-69.2239	456	-14.0003	-78.1858	448	-15.2071	-79.3926						
17	15-May-2011 11:27:51	45.75914	4.843125	104	-5.2749	-73.1078	456	-12.5832	-80.416	448	-16.498	-84.3307						
18	15-May-2011 11:27:52	45.75932	4.843383	104	-6.12156	-73.1894	456	-9.14078	-76.2086	448	-17.0508	-84.1186						
19	15-May-2011 11:27:53	45.75932	4.84364	456	-4.607	-72.0801	104	-4.607	-72.0801	448	-18.0932	-85.5664						
20	15-May-2011 11:27:54	45.75932	4.843897	104	-4.83127	-73.4455	456	-4.83127	-73.4455	448	-19.5635	-88.1779						
21	15-May-2011 11:27:55	45.75932	4.844154	456	-4.92422	-72.1794	104	-4.92422	-72.1794	64	-15.6353	-83.3772	448	-20.5804	-87.8354	290	-20.8968	-89.2295
22	15-May-2011 11:27:56	45.75932	4.844411	456	-6.60093	-75.7236	104	-10.1241	-79.2467	64	-14.718	-83.8407	448	-20.5071	-89.6297	288	-21.9746	-91.0971
23	15-May-2011 11:27:57	45.75932	4.844669	456	-6.54414	-78.4685	104	-10.6593	-82.5836	448	-17.7792	-89.7034	64	-18.6604	-90.5849	290	-24.8379	-96.7624
24	15-May-2011 11:27:58	45.75932	4.844926	456	-6.28625	-79.5439	104	-8.71096	-81.9687	448	-16.8209	-90.0784	64	-20.262	-93.5198	288	-24.8594	-97.8387

The name of the **mandatory** columns (mandatory columns are presented inside of the red rectangle into the above picture) should contain minimum the **red** strings presented into the picture above:

The Drive Tests measurements data should contain the **TOP X best servers** detected from the **3G scanner/mobile** device at one time containing the following details:

TOP X SC / TOP X CPICH Ec/No / TOP X CPICH RSCP into this order, one after the other in descending order (1 to X);

As presented into the above picture, the columns headers/names should contain the following strings:

TOP 1 SC / TOP 1 CPICH Ec/No / TOP 1 CPICH RSCP / TOP 2 SC / TOP 2 CPICH Ec/No / TOP 2 CPICH RSCP / TOP 3 SC / ...

It is recommended to export at least the first **Top 6 best servers** (3G) into the file in order to get the best neighbors results.

B) 3G case: => Top_X different lines format:

	1	2	3	4	5	6
1	Time_Stamp	GPS Lat	GPS Lon	Top 1 SC	Top 1 CPICH Ec/No	Top 1 CPICH RSCP
24	19-Oct-2011 13:33:45	47.84478	5.290713	494	-9.598	-84.703
25	19-Oct-2011 13:33:45	47.84478	5.290713	75	-15.105	-90.211
26	19-Oct-2011 13:33:45	47.84478	5.290713	10	-22.727	-97.832
27	19-Oct-2011 13:33:45	47.84478	5.290713	328	-24.84	-99.945
28	19-Oct-2011 13:33:46	47.84481	5.290821	494	-9.336	-84.754
29	19-Oct-2011 13:33:46	47.84481	5.290821	75	-16.715	-92.133
30	19-Oct-2011 13:33:46	47.84481	5.290821	10	-22.656	-98.074
31	19-Oct-2011 13:33:47	47.84482	5.290834	494	-8.613	-83.754
32	19-Oct-2011 13:33:47	47.84482	5.290834	75	-17.199	-92.34
33	19-Oct-2011 13:33:47	47.84482	5.290834	10	-22.121	-97.262
34	19-Oct-2011 13:33:47	47.84482	5.290834	328	-24.672	-99.813

The name of the **mandatory** columns/fields should contain minimum the **red** strings presented into the picture above:

TOP 1 SC / TOP 1 CPICH Ec/No / TOP 1 CPICH RSCP

This case (Top_X different lines format), by comparison with the previous case a) mentioned above, the **TOP X best servers** detected from the **3G scanner/mobile** device at one time are presented in different lines one after the other, always into the same columns (corresponding formally to the Top 1 best server) as per how it is presented into the picture above. The number and order of the Top_X best servers exported (meaning which is the order how they are exported into the Drive Test measurement file) doesn't matter for this format as far as Agileto tool will sort them accordingly during the time of processing the data.

C) 2G case: => Top_X in line format:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Time_Stamp	GPS Lat	GPS Lon	Top 1 ARFCN	Top 1 RSSI	Top 1 BSIC	Top 2 ARFCN	Top 2 RSSI	Top 2 BSIC	Top 3 ARFCN	Top 3 RSSI	Top 3 BSIC	Top 4 ARFCN	Top 4 RSSI	Top 4 BSIC	Top 5 ARFCN	Top 5 RSSI	Top 5 BSIC
2	22-Oct-2011 11:05:03	45.83095	5.329197	781	-71	50												
3	22-Oct-2011 11:05:04	45.83095	5.329198	781	-73	50												
4	22-Oct-2011 11:05:05	45.83095	5.329199	781	-73	50	778	-74	34	1019	-73	42						
5	22-Oct-2011 11:05:06	45.83096	5.329212	781	-76	50	1015	-70	33	1019	-75	42	778	-74	34	1009	-76	44
6	22-Oct-2011 11:05:07	45.83097	5.329219	781	-74	50	1015	-69	33	1019	-79	42	778	-75	34	1013	-79	52
7	22-Oct-2011 11:05:08	45.83096	5.329225	781	-73	50	1015	-71	33	778	-79	34	1009	-75	44	1019	-80	
8	22-Oct-2011 11:05:09	45.83094	5.329227	781	-72	50	1015	-70	33	1009	-77	44	778	-76		1013	-78	52
9	22-Oct-2011 11:05:10	45.83089	5.329224	1015	-69	33	781	-71	50	778	-74	34	1019	-76	42	1009	-77	44
10	22-Oct-2011 11:05:11	45.83091	5.329248	1015	-73	33	781	-71	50	778	-73	34	779	-79	45	1019	-77	42
11	22-Oct-2011 11:05:12	45.83091	5.329235	1015	-70	33	781	-70	50	778	-74	34	779	-79	45	1019	-78	
12	22-Oct-2011 11:05:13	45.83093	5.329102	1015	-76	33	781	-70	50	778	-73	34	792	-80	42	1009	-76	44

The name of the **mandatory** columns (mandatory columns are presented inside of the red rectangle into the above picture) should contain minimum the **red** strings presented into the above picture.

The Drive Tests measurements data should contain the **TOP X best servers** detected from the **2G scanner/mobile** device at one time containing the following details:

TOP X ARFCN / TOP X RSSI / TOP X BSIC into this order, one after the other in descending order (1 to X);

As presented into the above picture, the columns headers/names should contain the following strings:

TOP 1 ARFCN / TOP 1 RSSI / TOP 1 BSIC / TOP 2 ARFCN / TOP 2 RSSI / TOP 2 BSIC / TOP 3 ARFCN / ...

It is recommended to export at least the first **Top 10 best servers** (2G) into the file in order to get the best neighbors results.

D) 2G case: => Top_X different lines format:

	1	2	3	4	5	6
1	Time_Stamp	Latitude	Longitude	Top 1 ARFCN	Top 1 RSSI	Top 1 BSIC
32	15-May-2012 12:15:14	45.78412	4.892274	762	-78.6	41
33	15-May-2012 12:15:14	45.78412	4.892274	995	-88	52
34	15-May-2012 12:15:14	45.78412	4.892274	987	-87	42
35	15-May-2012 12:15:14	45.78412	4.892274	753	-88	52
36	15-May-2012 12:15:14	45.78412	4.892274	984	-86	38
37	15-May-2012 12:15:14	45.78412	4.892274	986	-79	37
38	15-May-2012 12:15:14	45.78412	4.892274	35	-98	23
39	15-May-2012 12:15:14	45.78412	4.892274	53	-100	
40	15-May-2012 12:15:14	45.78412	4.892274	980	-88	51
41	15-May-2012 12:15:14	45.78412	4.892274	992	-88	25
42	15-May-2012 12:15:15	45.78392	4.892017	762	-80.7	41
43	15-May-2012 12:15:15	45.78392	4.892017	995	-87	52
44	15-May-2012 12:15:15	45.78392	4.892017	987	-86	42
45	15-May-2012 12:15:15	45.78392	4.892017	986	-79	37
46	15-May-2012 12:15:15	45.78392	4.892017	35	-98	
47	15-May-2012 12:15:15	45.78392	4.892017	984	-86	38
48	15-May-2012 12:15:15	45.78392	4.892017	980	-88	51
49	15-May-2012 12:15:15	45.78392	4.892017	40	-89.5	34
50	15-May-2012 12:15:15	45.78392	4.892017	992	-90.5	25
51	15-May-2012 12:15:16	45.78378	4.891743	995	-80.3	52
52	15-May-2012 12:15:16	45.78378	4.891743	762	-83.5	41
53	15-May-2012 12:15:16	45.78378	4.891743	987	-85.6	42

The name of the **mandatory** columns/fields should contain minimum the **red** strings presented into the above picture:

TOP 1 ARFCN / TOP 1 RSSI / TOP 1 BSIC

This case (Top_X different lines format), by comparison with the previous case a) mentioned above, the **TOP X best servers** detected from the **2G scanner/mobile** device at one time are presented in different lines one after the other, always into the same columns (corresponding formally to the Top 1 best server) as per how it is presented into the above picture. The number and order of the Top_X best servers exported (meaning which is the order how they are exported into the Drive Test measurement file) doesn't matter for this format as far as Agileto tool will sort them accordingly during the time of processing the data.

Observations:

- 1) In case of providing for input a single **3G-3G Inter-Frequency** Drive Test measurements file, the format of the file should be similar with the case **A) 3G case: => Top_X in line format** (mentioned above) for the data related to the “Source” 3G frequency layer followed by new columns at the right side (corresponding to the data related to the “Target” 3G frequency layer) which should keep the same columns names/headers format for the **Top_Y best servers** related to the “Target” 3G frequency layer as they have been presented for the “Source” 3G frequency layer.

- 2) In case of providing for input a single **3G-2G Inter-RAT** Drive Test measurement file, the format of the file should be similar with the case **A) 3G case: => Top_X in line format** (mentioned above) for the data related to the “Source” 3G frequency layer followed by new columns at the right side (corresponding to the data related to the “Target” 2G) which should keep the same columns names/headers format for the **Top_Z best servers** (2G) related to the “Target” 2G data as they have been presented above for the case **C) 2G case: => Top_X in line format**.

KPIs file structure and format

This file is usually provided by the monitoring Engineer and the format should be like it is presented below (Ex: below is CDR[%]):

2	3	4	5	6	7	8	9	10	11
LCID ▼	05/01/2010 ▼	05/02/2010 ▼	05/03/2010 ▼	05/04/2010 ▼	05/05/2010 ▼	05/06/2010 ▼	05/07/2010 ▼	05/08/2010 ▼	05/09/2010 ▼
10843	0.66%	0.56%	0.64%	0.48%	0.59%	0.51%	0.51%	0.72%	0.44%
31863	1.25%	8.33%	7.59%	10.43%	5.56%	7.20%	6.94%	4.35%	11.27%
10844	0.95%	0.52%	1.00%	0.21%	0.86%	0.36%	0.39%	0.78%	0.35%
31864	0.00%	0.00%	12.50%	25.00%	0.00%	5.56%	7.14%	33.33%	0.00%
7440	0.64%	0.83%	0.43%	0.24%	0.47%	0.54%	0.00%	0.16%	1.07%
31879	0.00%	0.00%	0.00%	13.33%	0.00%	0.00%	0.00%	0.00%	0.00%
27437	Nerr	Nerr	Nerr	Nerr	Nerr	Nerr	Nerr	Nerr	Nerr
20490	0.00%	8.33%	0.00%	3.03%	0.00%	0.00%	0.00%	0.00%	0.00%
20491	0.00%	0.00%	1.41%	0.00%	0.97%	1.71%	0.00%	1.03%	0.00%

One column (usually the first on the left but not mandatory) should contain a reference key for the 3G cells (**LCID** or **Cell_Name**) and the others may contain different KPIs; this reference key is used by Agileto tool to match each 3G cell with its associated KPI.

The next screenshot present a set of data for the case of KPI = CS RB Setup:

2	3	4	5	6	7	8	9	10	11
LCID ▼	05/01/2010 ▼	05/02/2010 ▼	05/03/2010 ▼	05/04/2010 ▼	05/05/2010 ▼	05/06/2010 ▼	05/07/2010 ▼	05/08/2010 ▼	05/09/2010 ▼
10843	3814	2748	5518	6098	6203	6621	7097	3403	2355
31863	102	33	109	142	138	172	194	87	80
10844	742	572	998	929	950	1106	1302	772	581
31864	19	9	14	17	18	23	20	8	11
7440	656	615	982	915	1142	1180	1179	657	479
31879	13	10	29	26	31	37	17	13	6
27437	0	0	0	0	0	0	0	0	0
20490	27	11	28	31	35	44	44	14	10
20491	87	52	71	84	97	123	97	97	59

The KPIs can be provided into the files having datasheets with one type of KPI per sheet for different days (hours/etc) – like it is presented above - or it may be provided in sheets containing the reference key column (**LCID** or **Cell_Name**) followed by different KPIs such as CSSR, CDR, CS_RB_Setup, PS_Throughput, etc, taken at specific time.

PSCs detected file format

These files may come as output from different sources (Drive Tests, Monitoring, Call Traces) and they need to present the combinations detected between the 3G source cell and PSC detected; some other additionally information may be provided like the number of occurrences for each Source – Target combination occurred, EcNo_Avg/Min/Max, etc.

Below it is presented the format when the set of PSCs detected is coming as output after post-processing Cal Traces:

1	2	3	4	5	6	7	8	9	10	11	12
RefRncCellId	NbIFM	Detected cell SC	Occurrence	EventOcc	EcIoAvg	EcIoEventAvg	EcIoMax	EcIo18	EcIo18to17	EcIo17to16	EcIo16to15
207 20202 (29)	351	469	1	0	-11.5	0.0	-11.5	0	0	0	0
207 20202 (29)	351	245	1	0	-14.5	0.0	-14.5	0	0	0	0
207 20202 (29)	351	190	1	0	-18.0	0.0	-18.0	0	1	0	0
207 20202 (29)	351	233	1	0	-20.0	0.0	-20.0	1	0	0	0
207 20202 (29)	351	321	4	0	-10.5	0.0	-9.5	0	0	0	0
207 20202 (29)	351	193	92	0	-18.1	0.0	-10.5	49	9	18	2
207 20202 (29)	351	467	102	0	-19.0	0.0	-16.0	71	17	13	1
207 20202 (29)	351	468	276	0	-8.3	0.0	-5.5	5	3	5	2
207 65048 (72)	122	338	1	0	-19.0	0.0	-19.0	1	0	0	0
207 47993 (101)	157	321	1	0	-17.5	0.0	-17.5	0	1	0	0
207 47993 (101)	157	340	7	0	-19.2	0.0	-18.0	5	2	0	0
207 47993 (101)	157	235	28	0	-14.0	0.0	-5.5	7	0	1	3

- On the left side the first columns provides the necessary elements for the unique identification of the 3G source cell [RefRncCellId -> RNCID + CellID + (PSC)];
- PSC detected is given into the column **Detected cell SC**;
- Additionally info may be provided as: **Occurance/EcIoAvg/EcIoMax**/etc;

Other formats coming from other sources may be easy converted into the above format and they may be used straight by the tool.

In case of special demand coming from different customers, we may provide converters in order to get the good format.

OMC 2G network file format

This is the file that should be exported from the (2G) OMC related to the 2G networks. It should contain important key 2G information / parameters necessary to be updated always into the 3G network as long as they have been changed into 2G network. These files can be provided into *.csv or *.xls formats but if they are open in Excel they should look like into the screenshot below.

	1	2	3	4	5	6
1	GSMCell_ID	LAC	bcc	ncc	bcchFrequency	Cell_Name
2	20401	208	7	4	32	Branford_Estate_1
3	23312	205	6	5	39	Noord_2
4	25373	211	6	4	31	Paarlom_3
5	48515	203	2	0	43	Waalomberg_1
6	60892	202	7	0	50	City_Offices_2
7	25191	202	5	4	37	Mutual_1
8	60691	254	2	7	40	Club_Mykynes_1
9	20942	204	1	4	51	Preekstoel_2
10	61011	210	2	4	39	Stellen_1
11	20902	208	6	3	40	Baview_2

The names of the columns and the order how they are detected into this file are not important as the right association between the columns may be selected during the running of the modules M1.1 or M2.1 (when these files may be used as inputs).

The mandatory type of the columns to be exported from the (2G) OMC are:

- **GSMCell_ID**
- **LAC**
- **bcc**
- **ncc**
- **bcchFrequency**

The last field (**Cell_Name**) is not mandatory but it is highly recommended to be provided (if available) in order to have a better association/detection between the 2G cells by using their Cell Names instead of their CID.

MapInfo Neighbors export file

This file is a *.csv file exported from MapInfo while working with the module M3.3 (MapInfo Neighboring tool). This file contains the neighboring changes performed visually in MapInfo (Additions and/or Removals).

If the file is open in Excel it should look like the screenshot presented below (case of 3G-3G neighbors):

	1	2	3	4	5	6	7
1	Cell_Source	Cell_Target	RNC_Source	RNC_Target	sib11OrDchUsage	NewSib11OrDchValue	Method
2	W51769_11	W49697_11	613	613	sib11AndDch		Remove
3	W49697_11	W51769_11	613	613	sib11AndDch		Remove
4	W49697_11	W48828_31	613	613	sib11AndDch		Add
5	W48828_31	W49697_11	613	613	sib11AndDch		Add
6	W49697_11	W49592_21	613	613	sib11AndDch		Add
7	W49592_21	W49697_11	613	613	sib11AndDch		Add
8	W49697_11	W48263_11	613	613	dchUsage		Add
9	W48263_11	W49697_11	613	613	sib11AndDch		Add

- The first four (4) columns reflect the **Cell Codes** and their associated **RNC_IDs** related to the Cells Source and Target;
- It follows the **sib11orDchUsage** flag allocation (specific for each neighbor relationship);
- In case it is necessary just to change for an existing neighbor declaration the sib11orDchUsage flag, then the new column named NewSib11OrDchValue will be data-filled with the new desired value regarding **sib11orDchUsage** flag allocation;
- The last column (Method) presents the action to be performed (Remove/Add);

Please see below a similar screenshot for a case representing an export of 3G-2G neighbors changes.

	1	2	3	4	5
1	Cell_Source	Cell_Target	RNC_Source	Method	CGI_Target
2	W937_21	G33515_1	613	Remove	33515.6001.203.10
3	W937_21	G12257_2	613	Add	12257.3970.203.10
4	W937_21	G12236_2	613	Add	12236.3966.203.10
5	W937_21	G40561_3	613	Add	40561.3966.203.10
6	W937_21	G30960_3	613	Add	30960.6001.203.10

In case of the 3G-2G neighbors export it is a new column CGI_Target (2G) presenting: CID.LAC.MCC.MNC.

MapInfo Neighbors import file

These files have *.csv formats and usually are provided as outputs of the modules M3.1 or M3.2. They contain the 3G-3G and 3G-2G neighbors declarations to be imported into MapInfo. In case they are open in Excel they should look with the formats like it will be presented below.

The file structure and formats associated to these files is as it is presented into the next screenshots.

3G-3G Neighbors file (the structure is identically with the first five (5) columns presented into MapInfo Neighbors export file (see [above](#))]

	1	2	3	4	5
1	Cell_Source	Cell_Target	RNC_Source	RNC_Target	sib11OrDchUsage
2	W52256_11	W52257_31	613	613	sib11AndDch
3	W52256_11	W51784_21	613	613	sib11AndDch
4	W52256_11	W53396_11	613	613	sib11AndDch
5	W52256_11	W10538_31	613	613	sib11AndDch
6	W52256_11	W10536_11	613	613	sib11AndDch
7	W52256_11	W53526_11	613	613	sib11AndDch
8	W52256_11	W53941_31	613	613	sib11AndDch
9	W52256_11	W52269_21	613	613	sib11AndDch
10	W52256_11	W52270_11	613	613	sib11AndDch
11	W52257_31	W51784_21	613	613	sib11AndDch

3G-2G Neighbors file [the structure is identically with the first three (3) columns presented into MapInfo Neighbors export file (see [above](#))]

	1	2	3
1	Cell_Source	Cell_Target	RNC_Source
2	W52256_11	G6488_1	613
3	W52256_11	G6534_2	613
4	W52256_11	G6489_3	613
5	W52256_11	G34157_2	613
6	W52256_11	G34150_3	613
7	W52256_11	G5647_1	613

External Neighbors declarations file

These files may be provided as inputs to the module M3.3 (MapInfo Neighboring tool) when OMC 3G configuration files are not available (in order to use them to generate MapInfo Neighbors input files).

There are many options how the neighbors data can be provided, as following:

A) In case of **3G-3G neighbors** declarations the configuration and structure of the data file may be resumed to the following information:

- **Source 3G Cell:**
 - a) localCellId or
 - b) RNC_ID + Cell_ID
- **Target 3G Cell:**
 - a) localCellId or
 - b) RNC_ID + Cell_ID

Below it is provided as example a representation in case of the **3G-3G neighbors** (only data from the yellow background is mandatory):

1	2	3	4	5	6	7	8
RNC ID	Cell ID	RNC ID of a neighboring cell	Neighboring cell ID	Neighboring cell oriented CIO[dB]	SIB11 Indicator	The flag of the priority	The priority of neighbor cell
215	36037	215	36880	0	TRUE	FALSE	1
215	36037	215	36881	0	TRUE	FALSE	2
215	36037	215	36882	0	TRUE	FALSE	3
215	36037	215	38560	0	TRUE	FALSE	4
215	36037	215	38561	0	TRUE	FALSE	5
215	36775	215	36776	0	TRUE	FALSE	1
215	36775	215	36786	0	TRUE	FALSE	2

The header/columns names and the order how the columns are organized into the file are not important/mandatory.

B) In case of 3G-2G neighbors declarations only the following data (columns) should be provided as mandatory:

- **Source 3G Cell:**
 - a) localCellId or
 - b) RNC_ID + Cell_ID
- **Target 2G Cell:**
2G_CID

C) In case of 2G-2G neighbors declarations only the following data (columns) should be provided as mandatory:

- **Source 2G Cell:**
2G_CID (2G source cell)
- **Target 2G Cell:**
2G_CID (2G target cell)

Agileto Contact Details

Agileto®



Contact details:

Sales: sales@agileto.com

Support: support@agileto.com

Web site: www.agileto.com